U.S. Department of the Interior
Bureau of Land Management
White River Field Office
220 E Market St
Meeker, CO 81641

ENVIRONMENTAL ASSESSMENT

NUMBER: DOI-BLM-CO-110-2010-131-EA

CASEFILE/PROJECT NUMBER: COC-064204 (BDU 1-9-299)
COC-062816 (BDU 13-8-199)

PROJECT NAME: Buckhorn Draw Unit Well (2) – BDU 1-9-299 & BDU 13-8-199

LEGAL DESCRIPTION: BDU 1-9-299: T2S, R99W, Section 1 (NESE), 6th PM
BDU 13-8-199: T1S, R99W, Section 13 (SENE), 6th PM

APPLICANT: Mesa Energy Partners, LLC.

ISSUES AND CONCERNS (optional): All known issues have been resolved.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

Background/Introduction: The White River Field Office (WRFO) received Notice of Stakings (NOS's) on March 19, 2010 for two (2) wells for BDU 1-9-299 and BDU 13-8-199. Both are located just within the eastern boundary of Mesa Energy Partners, LLC's Buckhorn Draw Unit which lies east of Cathedral Bluffs. This was followed by an onsite inspection for these wells on April 22, 2010. The Application for Permit to Drill (APD) was subsequently received on May 25, 2010 and June 1, 2010, respectively.

BDU 1-9-299 was relocated from its original location (BDU 1-8-299) approximately 200 ft to the south/southeast to get it out of a mature pinyon-juniper stand and into a much younger stand as well as move the location so that it is now adjacent to the existing disturbance of a pipeline right-of way (ROW) corridor. BDU 13-8-199 was relocated from its original location (BDU 13-7-199) approximately 300 ft to the southeast to get out of the clean, un-encroached sage park, and into an area that contained more pinyon-juniper encroachment.

This Environmental Assessment (EA) has been prepared to analyze the potential impacts that could result from Mesa Energy drilling the proposed wells and associated actions such as constructing the proposed well pads and access roads, and installing the proposed pipelines.

Proposed Action: *BDU 1-9-299 ~* Mesa Energy Partners, LLC proposes to construct one 320 ft x 400 ft well pad and drill one well on the pad (see Table 1 for pad dimensions and total area

disturbed). The proposal indicates the applicant would construct a 3,130 ft (0.6 miles) {630 ft (0.1 mi) of new construction and 2,430 ft (0.5) of existing road upgrade} access road off of County Road (CR) 91. In addition, the applicant will install 9,050 ft (1.7 miles) of pipeline. The pipeline would be installed adjacent to the northeast edge of the pad, then laid parallel to the existing pipelines, running to a tie-in point to the southwest in T2S, R99W, Section 11. Total acres disturbed including overburden to construct the well pad, access road, and pipeline corridor would be approximately 18.98 acres.

BDU 13-8-199 ~ Mesa Energy Partners, LLC proposes to construct one 320 ft x 400 ft well pad and drill one well on the pad (see Table 1 for pad dimensions and total area disturbed). The proposal indicates the applicant would construct and upgrade 4,050 ft (0.76 miles) {470 ft (0.09 mi) of new construction to realign the entry off of CR-24X, 1,450 ft (0.27 mi) of new access road construction, and 2,130 ft (0.4) of existing road upgrade} of access road off of CR 24X. In addition, the applicant will install 11,100 ft (2.1 miles) of pipeline. The pipeline would be installed parallel to the access road, then run parallel to CR 24X northwest to a tie-in point to the southwest in T1S, R99W, Section 14, NENE. Total acres disturbed including overburden to construct the well pad, access road, and pipeline corridor would be approximately 22.89 acres.

Table 1. Pad dimensions and acres disturbed for the proposed well pads and access roads.

Well Pad	Pad Dimensions (ft)	Pad Disturbance[a] (Acres)	Access Dimensions (ft)	Access Disturbance[a] (Acres)	Pipeline Dimensions[c] (ft)	Pipeline Disturbance[a] (Acres)	Total Site Disturbance[b] (Acres)
1-9-299	320 x 400	5.0	3,130 x 50	3.59	9,050 x 50	10.39	18.98
13-8-199	320 x 400	5.5	4,050 x 50	4.65	11,100 x 50	12.74	22.89
Overall Total Disturbance (Acres)[b]							**41.87**

[a] Estimate includes total acres disturbed for pad surface and overburden.
[b] Estimate includes total acres disturbed for well pad, proposed access road and pipeline corridor.
[c] Estimate pipeline disturbance is based on a 50ft ROW working surface during construction, and 14-16 ft reclaimed surface after construction.

The Surface Use Plans of Operations (SUPO) and APD for both wells BDU 1-9-299 and BDU 13-8-199 are incorporated by reference, and summarized below:

Access

Existing roads within 1.0 mile of BDU 1-9-299 consists of a gravel resource road, to within 0.6 miles, which will provide access to the proposed location.

Existing roads within 1.0 mile of BDU 13-8-199 consists of CR 20A, CR 24X, and an existing dirt trail to within 0.1 miles, which will provide access to the proposed location. This route reflects the BLM request from the onsite that the existing area road be utilized for access rather than constructing an entirely new proposed route coming directly off of CR 24X as previously proposed.

Plans for improvement and/or maintenance of existing roads are to maintain in as good or better conditions than at present. A regular maintenance plan will include, but not be limited to blading, ditching, and surfacing.

Borrow ditches to be backsloped 3:1 or shallower. Weather permitting, the access road will be mowed and the borrow ditch material will be pulled over the top of the mowed area.

Road construction on public lands shall meet the minimum standards listed in BLM Manual Section 9113 and shall be constructed under the direction of a qualified construction supervisor(s). The qualified construction supervisor shall be an engineer, company superintendent or other representative who is competent and knowledgeable in oilfield road and drill site construction, and able to speak for the operator. The dirt contractor, or drilling/completion foreman whose primary expertise is not in construction, do not qualify as construction supervisors.

Production Facilities

All above ground permanent structures will be painted to blend with the surrounding landscape and per BLM recommendations. The typical paint color for this area is Juniper Green (no Munsell color). To reduce the view of production facilities from visibility corridors and private residences, facilities will not be placed in visually exposed locations (such as ridgelines and hilltops). All production facilities will be painted within six months of installation. Facilities that are required to comply with Occupation Safety and Health Administration (OSHA) Rules and Regulations will be excluded from this painting requirement. The tallest structure will be no greater than 20' in height.

Run off and sediment control Best Management Practices (BMPs) will be implemented and maintained according to the Buckhorn Draw Unit Storm Water Management Plan. Pursuant to Onshore Order No. 7 (OSO #7), this is a request for authorization for reserve pit disposal of water produced from this well for a period of 90 days from the date of initial production. A permanent disposal method must be approved by BLM and in operation prior to the end of this 90-day period. In order to meet this deadline, an application for the proposed permanent disposal method will be submitted along with any necessary water analyses, in compliance with OSO #7 as soon as possible, but no later than 45 days after the date of first production. Any method of disposal, which has not been approved prior to the end of the authorized 90-day period, will be considered as an Incident of Noncompliance and will be grounds for issuing a shut-in order until an acceptable manner for disposing of said water is provided and approved by BLM.

Pipelines

All flowlines and pipelines will remain within the federal Buckhorn Draw Unit boundary, identified by Serial Register No. COC73788X. No separate ROW applications should be necessary.

All buried pipelines will be buried to a minimum of 3-4 ft, except at road crossings where they will be buried to 4 ft.

Construction width of the ROW shall be restricted to 50 ft of disturbance. Reclamation width of the ROW shall be approximately 14-16 ft.

Water Supply

A) Water to be used for the drilling and completing of this well may be delivered to the location via (1) pumping through a water pipeline, or (2) hauling by truck over the roads.
The water source may be from (1) recycled flow back water (frac water from completions), production water gathered from producing wells, or some combination thereof resulting from ongoing operations in the Piceance Basin that may be treated for reuse, or (2) fresh water from available water rights in the Piceance Basin.
B) The fresh water providers are Williams and EnCana. Due to possible summer water restrictions it is imperative that multiple sources be available for use. Williams fresh water will come from their nearby *Ryan Gulch Ranch* fresh water loadout located at 39.864375 latitude and 108.430068 longitude. EnCana's fresh water source will come from the *Foote Ranch* loading facility located at -108.246316 latitude and 40.008838 longitude, NAD83.
C) Mesa Energy estimates that we will use ~5,000 bbls of fresh water for drilling, and ~50,000 bbls of either fresh or recycled water for completions. The amount of water used for dust abatement is estimated to be ~ 1,000 bbls/year. If it becomes necessary to truck water, CR 24, CR24X, and CR 91 will be utilized.

Waste Disposal

A) Drill cuttings will be buried in reserve pit when dry.
B) Drilling fluid will be evaporated and then buried in the reserve pit when dry.
C) Completion fluids will be flowed to the reserve pit and allowed to evaporate.
D) Reserve pit layout is illustrated on Pad Layout, Production Schematic, Typical Rig Layout and Existing Contours.
E) Reserve pit will be lined with a synthetic liner 12 mil or thicker. The reserve pit liner shall be made of any manmade synthetic material of sufficient size and qualities to sustain a hydraulic conductivity no greater than 1 x 10-7 cm/sec after installation and which is sufficiently reinforced to withstand normal wear and tear associated with the installation and pit use thereof. The liner shall be chemically compatible with all substances that may be put into the pit.
F) Reserve pit will be fenced on three sides during drilling operations and on fourth side at time of rig release. Pit will remain fenced until backfilled.
G) Flare pit for air drilling will (if used) be located minimum 100' from well bore.
H) Produced fluid will be contained in test tanks during completion and testing.
I) Drilling fluids including salts and chemicals will be contained. Upon termination of drilling and completion operations, the mud will be transferred to another drilling location for use, dewatered and recycled, or removed and disposed of at an approved waste disposal facility within ninety (90) days after termination of drilling and completion activities.
J) In the event that adverse weather conditions prevent removal of the fluids from the mud system within this time period, an extension may be granted by the authorized officer (AO) upon receipt of a written request from Mesa.
K) Produced fluids – liquid hydrocarbons produced during completion operations will be gathered in flow back tanks or a completion pit on location. Produced waste water will be confined to a completion pit or flow back tanks for a period not to exceed ninety (90) days after initial production.
L) Produced fluids – liquid hydrocarbons produced during production operations will be confined to a pit (water storage pit) or flow back tanks for a period not to exceed ninety

(90) days. It may also be recycled and used for drilling, completion or fracing for another well or location. Excess water may be piped or trucked to disposal wells and/ trucked to a commercial disposal facility.
M) Sewage disposal facilities will be in accordance with State and Local Regulations. Sewage may not be buried on location or put in a borehole. Colorado Department of Public Health and Environmental (CDPHE) Regulations prevent this unless a CDPHE Permit is obtained.
N) Garbage and other waste - burnable waste will be contained in a portable trash cage which will be totally enclosed with small mesh wire. Cage and contents will be transported to and trash dumped at a CDPHE approved Sanitary Landfill upon completion of operations.
O) Trash will be picked up if scattered and contained in trash cage as soon as practical after rig is moved off.
P) Upon release of the drilling rig, rathole and mousehole will be filled. Debris and equipment not required for production will be removed.
Q) Any spills of oil, gas, salt water or any other fluid used during any phase of oil and gas development (including drilling, fracing and completions, and production) will be reported immediately to the BLM, and other responsible parties, and will be mitigated immediately, as appropriate, through clean up or removal to an approved disposal site. CFR 3162.5 grants authority to the Bureau to manage releases of potentially hazardous chemicals, and the operator must comply with Orders of the AO that are issued to protect the environment as part of their environmental obligations under this code.

Wellsite Layout
A) Roads and well production equipment, such as tanks, treaters, separators, vents, electrical boxes, and equipment associated with pipeline operation, will be placed on location so as to permit maximum interim reclamation of disturbed areas. If equipment is found to interfere with the proper interim reclamation of disturbed areas, the equipment may be moved so proper recontouring and revegetation can occur.
B) Six inches of topsoil will be removed prior to location construction from the reserve pit area and/or any other disturbed areas. Topsoil will be stockpiled adjacent to the wellsite within the maximum disturbed area shown on the wellsite plat.
C) Topsoil and spoils pile will be clearly separated as shown on Pad Layout.
D) Erosion control measures will be applied pursuant to Mesa's General Permit to Discharge Stormwater under the Colorado Pollutant Discharge Elimination System and accompanying Stormwater Management Plan.
* E) The proposed 1-9-299 pad was moved by the request of the BLM ±200 fee east/southeast to avoid a stand of mature pinyon-juniper. Per BLM request the pad was moved so it abuts against the existing pipeline ROW
* F) The proposed 13-8-199 pad was moved by the request of the BLM ±300 feet southeast of the original location to avoid the clean sage park, and moved more into a younger pinyon-juniper encroached area and still balanced the cut/fill.
G) To control drainage, the BMPs for this location are perimeter ditch/berm, cut slope diversion.

Reclamation
GENERAL
A) Salvaging and spreading topsoil will not be performed when the ground or topsoil is frozen or too wet to adequately support construction equipment.

B) Earthwork for interim and final reclamation must be completed within six (6) months of well completion or plugging (weather permitting).
C) In areas that will not be drill-seeded, the seed mix will be broadcast-seeded at twice the application rate shown and covered 0.25 to 0.5 inches deep with a harrow or drag bar or will be broadcast-seeded into imprints, such as fresh dozer cleat marks.
D) No seeding will occur from May 15 to September 15. Fall seeding is preferred and will be conducted after September 15 and prior to ground freezing. Spring seeding will be conducted after the frost leaves the ground and no later than May 15.
E) Annual or noxious weeds shall be controlled on all disturbed areas as directed by the Field Office Manager. An intensive weed monitoring and control program will be implemented beginning the first growing season after interim and final reclamation. Noxious weeds that have been identified during monitoring will be promptly treated and controlled. A Pesticide Use Proposal (PUP) will be submitted to the BLM for approval prior to the use of herbicides. All reclamation equipment will be cleaned prior to use to reduce the potential for introduction of noxious weeds or other undesirable non-native species. The operator will coordinate all weed and insect control measures with state and/or local management agencies.
F) Reclaimed areas will be monitored annually. Actions will be taken to ensure that reclamation standards are met as quickly as reasonably practical.
G) Reclamation monitoring will be documented in a reclamation report and submitted to the AO. The report will document compliance with all aspects of the reclamation objectives and standards, identify whether the reclamation objectives and standards are likely to be achieved in the near future without additional actions, and identify actions that have been or will be taken to meet the objectives and standards. The report will also include acreage figures for: Initial Disturbed Acres; Successful Interim Reclaimed Acres; Successful Final Reclaimed Acres. Reports will not be submitted for sites approved by the AO in writing as having met interim or final reclamation standards. Any time 30% or more of a reclaimed area is redisturbed, monitoring will be reinitiated.
H) The AO will be informed when reclamation has been completed, is successful, and the site is ready for final inspection.

INTERIM RECLAMATION (Production)

A) Rehabilitation of unused, previously disturbed areas will consist of backfilling and contouring the reserve pit area, back sloping and contouring all cut and fill slopes. These areas will be reseeded.
B) Wellpad size will be reduced to minimum size necessary to conduct safe operations. Cuts and fills will be reduced to 3:1 or shallower.
C) Reserve pits will be closed and backfilled as soon as the pit contents are dry enough to do so, or no later than the end of the next full summer following rig release, whichever comes first, to allow sufficient time for the pit contents to dry. Reserve pits remaining open after this period will require written authorization of the AO. Immediately upon well completion, any hydrocarbons or trash in the reserve and flare pits will be removed. Pits will be allowed to dry, be pumped dry, or solidified in-situ prior to backfilling.
D) Following completion activities, pit liners will be removed or removed to the solids level and disposed of at an approved landfill, or treated to prevent their reemergence to the surface and interference with long-term successful revegetation. If it was necessary to line the pit

with a synthetic liner, the pit will not be trenched (cut) or filled (squeezed) while containing fluids. When dry, the pit will be backfilled with a minimum of five (5) feet of soil material. In relatively flat areas, the pit area will be slightly mounded to allow for settling and to promote surface drainage away from the backfilled pit.

E) The portions of the cleared well site not needed for operational and safety purposes will be recontoured to the original contour if feasible, or if not feasible, to an interim contour that blends with the surrounding topography as much as possible. Sufficient level area will remain for setup of a workover rig and to park equipment. In some cases, rig anchors may need to be pulled and reset after recontouring to allow for maximum interim reclamation.

F) Topsoil will be evenly respread and aggressively revegetated over the entire disturbed area not needed for all-weather operations including road cuts & fills and to within a few feet of the production facilities, unless an all-weather, surfaced, access route or small "teardrop" turnaround is needed on the wellpad.

G) Initial seedbed preparation will consist of backfilling, leveling, and ripping all compacted areas. Final seedbed preparation will consist of contour cultivating to a depth of 4" - 6" inches within 24 hours prior to seeding. Seeding will be conducted no more than 24 hours following completion of final seedbed preparation. A certified weed-free seed mix designed by BLM (shown below) to meet reclamation standards will be used. The seed mix will be used on all disturbed surfaces including pipelines and road cut & fill slopes.

H) To help mitigate the contrast of recontoured slopes, reclamation will include measures to feather cleared lines of vegetation and to save and redistribute cleared trees, debris, and rock over recontoured cut and fill slopes.

I) A proposed seed mixture for this location is BLM Native Seed Mix #3.

FINAL RECLAMATION (P & A – Removal of equipment)

A) Flowlines on location will be removed before site reclamation and all flowlines between the wellsite and production facilities will remain in place and will be filled with water.

B) The pad will be fenced to BLM standards to exclude livestock grazing for the first two growing seasons or until seeded species become firmly established, whichever comes later. Fencing will meet standards found on page 18 of the Gold Book, 4th Edition, or will be fenced with operational electric fencing.

C) Revegetation will be accomplished by planting mixed perennial grasses as specified below. Revegetation is recommended for road area as well as around production site.

D) A proposed seed mixture for this location is BLM Native Seed Mix #3.

E) Initial seedbed preparation will consist of backfilling, leveling, and ripping all compacted areas. Final seedbed preparation will consist of contour cultivating to a depth of 4" to 6" within 24 hours prior to seeding. Seeding will be conducted no more than 24 hours following completion of final seedbed preparation. A certified weed-free seed mix designed by BLM (shown above) to meet reclamation standards will be used. The seed mix will be used on all disturbed surfaces including pipelines and road cut & fill slopes.

F) Distribute topsoil, if any remains, evenly over the location, and seed according to the above seed mixture. If needed the access road and location shall be ripped or disked prior to seeding. Perennial vegetation must be established. Additional work shall be required in case of seeding failures, etc.

G) All disturbed areas, including roads, pipelines, pads, production facilities, and interim reclaimed areas will be recontoured to the contour existing prior to initial construction or a

contour that blends indistinguishably with the surrounding landscape. Resalvaged topsoil will be spread evenly over the entire disturbed site to ensure successful revegetation. To help mitigate the contrast of recontoured slopes, reclamation will include measures to feather cleared lines of vegetation and to save and redistribute cleared trees, woody debris, and large rocks over recontoured cut and fill slopes.

No Action Alternative: The APD would be denied. Therefore, the wells would not be drilled, the pad and access roads would not be constructed, and the pipelines would not be installed.

ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD:

Alternative: *1-8-299; initial location proposed for 1-9-299;* This alternative was considered, but is not being carried forward for detailed analysis because the operator agreed that the concerns brought to their attention during the onsite inspection were significant enough to warrant relocating the pad site to an alternate location, therefore causing this alternative to no longer be a viable option.

The WRFO received the NOS for the initial location for pad 1-9-299 on 03/19/2010. At this time, the proposed well was named 1-8-299. The location of this well was 39.90532^{o} N Lat, 108.44927^{o} W Lon. in T2S, R99W, Section 1, SENE; and is reflected in the NOS retained in the well file for well 1-9-299.

An onsite inspection was performed for this location on 04/22/2010. BLM personnel that attended were NRS - Briana Potts, Hydrologist - Bob Lange, Wildlife Biologist - Lisa Belmonte, Botanist - Maggie Marston, Botany Seasonal - Jill Schulte, and Forester - Jim Michels.

This site was located in a mature stand of pinyon-juniper woodland, with younger stands to the east and southeast. Mature pinyon-juniper woodlands hold many ecological values such as prime wildlife habitat. Additionally, there was an existing pipeline corridor to the north. Mesa Energy said at the onsite inspection that they would prefer to move the pad location so that it utilized as much of the pipeline corridor existing disturbance as possible. This was the preferred option by both parties to get the location out of the mature pinyon-juniper stand, and utilize existing disturbance. The secondary option offered to Mesa Energy if using the pipeline corridor was not a viable alternative, was to move the pad approximately 200 ft to the south/southeast to get it out of the mature pinyon-juniper stand and into a much younger stand.

Alternative: *13-7-199; initial location proposed for 13-8-199;* This alternative was considered, but is not being carried forward for detailed analysis because the operator agreed that the concerns brought to their attention during the onsite inspection were significant enough to warrant relocating the pad site to an alternate location, therefore causing this alternative to no longer be a viable option.

The WRFO received the NOS for the initial location for pad 13-8-199 on 03/19/2010. At this time, the proposed well was named 13-7-199. The location of this well was 39.96458^{o} N Lat, 108.44801^{o} W Lon. in T1S, R99W, Section 13, SWNE; and is reflected in the NOS retained in the well file for well 13-8-199.

An onsite inspection was performed for this location on 04/22/2010. BLM personnel that attended were NRS - Briana Potts, Hydrologist - Bob Lange, Wildlife Biologist - Lisa Belmonte, Botanist - Maggie Marston, Botany Seasonal - Jill Schulte, and Forester - Jim Michels.

This site was located in a mostly pure, un-encroached sage park which has unique wildlife habitat value. Because of this, the BLM requested Mesa to shift the pad approximately 300 ft to the southeast to get out of the clean sage park, and into the area containing more pinyon-juniper encroachment.

PURPOSE & NEED FOR THE ACTION: The purpose of the proposed action is to manage the exploration and development of mineral resources on Public Lands in a manner that avoids, minimizes, reduces, or mitigates potential impacts to other resource values.

The purpose of the action is to allow the development of Federal Leases on BLM surface through the drilling of the proposed well and associated actions. The need for the action is established under the authority of Federal Land Policy and Management Act of 1976 (FLPMA) to respond to the request to develop the Federal Leases.

Decision to be Made: The BLM will decide whether or not to approve the APD(s), and if so, under what conditions.

PLAN CONFORMANCE REVIEW: The proposed action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: White River Record of Decision and Approved Resource Management Plan (ROD/RMP).

Date Approved: July 1, 1997

Decision Number/Page: 2-5

Decision Language: "Make federal oil and gas resources available for leasing and development in a manner that provides reasonable protection for other resource values."

AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES / MITIGATION MEASURES

STANDARDS FOR PUBLIC LAND HEALTH: In January 1997, Colorado Bureau of Land Management (BLM) approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, threatened and endangered species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Because a standard exists for these five categories, a

finding must be made for each of them in an environmental analysis. These findings are located in specific elements listed below:

NATURAL, BIOLOGICAL, AND CULTURAL RESOURCES

AIR QUALITY

Affected Environment: The proposed action is located in rural northwest Colorado in the White River Basin, more than ten miles from special designation air sheds or non-attainment areas. Industrial facilities in White River Basin include coal mines, soda ash mines, natural gas processing plants and power plants. Due to these industrial uses, increased population and oil and gas development, emissions of air pollutants in the White River Basin due to exhaust and dust are likely to increase into the future. Despite increases in emissions, overall air quality conditions in the White River Basin are likely to continue to be good for some time to come due to effective atmospheric dispersion conditions and limited transport of air pollutants from outside the area.

Although specific air quality monitoring data are not available, data have been collected in the region. BLM recently established two air quality monitoring sites, one in Rangely and one in Meeker, that measure criteria pollutants, specifically ozone, dust and nitrogen oxides. The cities of Grand Junction (southwest), Steamboat Springs (northeast), Rifle (southeast) and Parachute (south) all host air quality monitoring stations. Available monitoring data at these stations indicate that the area is likely to be in the attainment category, meaning that the ambient concentrations of criteria pollutants are less than the applicable air quality standards (National Ambient Air Quality Standards and (NAAQS) and Colorado Ambient Air Quality Standards (CAAQS)). However it should be noted, not all criteria pollutants have been monitored at each monitoring sites and there is not continuous monitoring of all criteria pollutants at any of the sites. Also, differences in the atmospheric conditions, proximity to emissions, and climate at these monitoring sites make data from these sites less relevant to the project's location.

The White River Basin and the nearby portions of the Colorado River Basin has been classified as either attainment or unclassified for all air pollutants (NAAQS and CAAQS standards), and most of the area has been designated for the prevention of significant deterioration (PSD) Class II. Because the historic air quality in the White River Basin has been good, small changes in air quality may have noticeable localized effects, especially on visibility.

Environmental Consequences of the Proposed Action: The proposed action includes building 2 well pads, drilling 2 wells (1 per pad) as well as the construction and maintenance of access roads and pipelines.

Construction of well pads involves removing top soil, constructing pads using cut and fill techniques, and installing stormwater BMPs. Building new access roads will involve stripping the topsoil and winrowing it to the side, digging the barrow ditches and shaping the road crown, replacing the topsoil on cut/fill slopes and barrow ditches, and reclamation/stormwater control

efforts. Pipeline installation will involve vegetation removal, clearing a work surface, digging a trench and reclamation activities. During these construction phases dust production is likely, especially when conditions are dry and/or windy. Once the wells go into interim reclamation all the roads should have the topsoil redistributed and stabilized, the pipelines should be in final reclamation and the pads should be recontoured and stabilized.

As vegetation establishes in the reclaimed areas, the only dust production that is likely is due to vehicles traveling on the access road and pads to service the wells. Therefore, dust production is most likely during drilling and construction activities. With maintaining roads to BLM Manual Section 9113 standards, as specified by the operator and, and with the application of dust suppressants, dust generation should be reduced, but will still occur on access roads during production and be more pronounced during dry and windy conditions. The applicant has indicated that they will use water as a dust suppressant as needed.

The proposed action would increase the level of particulate matter during installation and construction, specifically particles ten microns or less in diameter (PM_{10}) associated with fugitive dust. In addition, increases in the following criteria pollutants: carbon monoxide, ozone (secondary pollutant), nitrogen dioxide, and sulfur dioxide would also occur due to combustion of fossil fuels during installation activities. Non-criteria pollutants such as visibility, nitric oxide, air toxics (e.g. benzene) and total suspended particulates (TSP) may also experience slight, temporary increases as a result of the proposed action (no national ambient air quality standards have been set for non-criteria pollutants). Even with these increased pollutants, this project is unlikely to result in an exceedance of NAAQ and CAAQ standards and is likely to be under PSD thresholds.

Environmental Consequences of the No Action Alternative: No impacts would occur

Mitigation: These items should be added as conditions of approval (COAs) to reduce dust production.

1. All access roads will be treated with water and/or a chemical dust suppressant during construction and drilling activities so that there is not a visible dust trail behind vehicles. All vehicles will abide by company or public speed restrictions during all activities. If water is used as a dust suppressant, there should be no traces of oil or solvents in the water and it should be properly permitted for this use by the State of Colorado. Only water needed for abating dust should be applied; dust abatement should not be used as a water disposal option under any circumstances.

SOILS

Affected Environment: The proposed action does not impact soils identified as fragile, landslide potential or with steep slopes. According to 10 meter Digital Elevation Model data there are no slopes greater than 25% for the proposed new construction. The soil classifications of the soils that will be impacted by new construction for the pads, roads and pipelines are shown in the table below.

Soil Classifications (acres potentially impacted based on a 30m buffer)

Soil Classification	Range Site Description	Acres
Rentsac-Piceance complex, 2-30% slopes	Pinyon-Juniper woodland/Rolling Loam	18
Rentsac channery loam, 5-50% slopes	Pinyon-Juniper woodlands	14

The Rentsac soils in these areas have a moderate to very high hazard for erosion and medium to rapid surface runoff. The Rentsac channery loam soils have sandstone crock fragments mixed in with soils near the surface. All soils should have topsoil removed at a minimum of 6 inches below the surface for storage.

BDU 13-8-199 has Biological Soil Crusts (BSCs) present, while BDU 1-9-299 does not have BSCs available. BSCs, a highly specialized community of cyanobacteria, mosses, and lichen, are likely to be found in these areas, especially locations that have not experienced significant livestock grazing. BSCs are an important component of soil productivity and are the result of an association between soil particles and cyanobacteria, algae, microfungi, lichens and bryophytes which live within or on top of the uppermost soil horizons. Different succession processes favor the formation of these crusts and BSCs play critical ecological roles in these processes. Depending on the site, BSCs are a significant factor in stabilizing soils and reducing erosion and they often play a decisive role in the success of vegetation and retention and/or production of soil nutrients. BSCs are typically more abundant in some locations due to microclimate conditions that are the result of vegetation modifying the local environment by providing nutrients, moisture, reducing sunlight and protecting BSCs from wind and/or water erosion.

Environmental Consequences of the Proposed Action: Potential impacts to soils from the proposed action include removal of vegetation, mixing of soil horizons, soil compaction, increased susceptibility to erosion, loss of topsoil productivity and contamination of soils with petroleum constituents. If reclamation is successful and spills are contained and cleaned up, impacts from this project will be minor and localized to disturbed areas.

The construction of the access roads and the well pad would result in the loss of vegetative cover, increasing the potential for water erosion and soil loss during excavation. Compaction due to construction activities would slightly reduce aeration, permeability and water-holding capacities of the soils. An increase in surface run-off could be expected from these areas, potentially causing increased sheet, rill and gully erosion. In addition, the segregation and reapplication of surface soils would result in the mixing of shallow soil horizons, resulting in a blending of soil characteristics and types. This blending would modify physical characteristics of the soils, including structure, texture and rock content, which could lead to reduced permeability and increased runoff from these areas.

The primary effect of surface disturbances on soil resources is in increasing erosion. Increased erosion of soils would also directly reduce vegetative productivity. Erosion potential for the soil types that would be disturbed in the project area ranges from slight to very high. If the seedbed is not stabilized, revegetation efforts will not be successful and erosion could become substantial.

This project is likely to result in localized erosion due to the poor soils and steep slopes in some sections.

Contamination of surface and subsurface soils can occur from leaks or spills of oil, produced water, and condensate liquids from wellheads, produced water sumps and condensate storage tanks. Leaks or spills of drilling and hydraulic fracturing chemicals, fuels and lubricants could also result in soil contamination. Such leaks or spills could compromise the productivity of the affected soils. Of these materials, leaks or spills of condensate would have the greatest potential environmental impact. Depending on the size and type of spill, the impact to soils would primarily consist of the loss of soil productivity. In addition, petroleum released to surface soils infiltrate the soil and, under the right conditions, can migrate vertically until the water table is encountered, thus contaminating shallow groundwater. Typically, contaminated soils would be removed and disposed of in a permitted facility or would be bioremediated in place using techniques such as excavating and mulching to increase biotic activities that would break down petrochemicals into inert and/or common organic compounds.

Surface disturbance would remove or bury BSCs and would decreased organism diversity in these areas, and hence decrease soil nutrients, soil stability, and organic matter in the soil horizon. Crusts are well adapted to severe growing conditions, but poorly adapted to compressional disturbances and/or removal that will occur as a result of the proposed action.

Replacement of topsoil and recruitment from adjacent sites will allow BSCs to return to most sites post disturbance. Full recovery of BSCs from disturbances is a slow process, particularly for mosses and lichens. Recovery of predisturbance crust thickness can take up to 50 years, and mosses and lichens can take up to 250 years to recover. Limiting the size of the disturbed area increases the rate of recovery, provided that there is a nearby source of inoculums (viable source of biological soil components that can be transported to the site via water, air and/or animals). As areas are reclaimed it is likely that BSCs will eventually recolonize the site. Their success is in proportion to the success of topsoil saving and reduction in areas disturbed. Saving and replacing topsoil allows for inoculums to repopulate a site; however, the amounts of inoculums needed, viability after storage in a topsoil pile and other factors that determine success are not well known. Therefore, it is likely that BSC will decrease overall in amount and diversity in the areas disturbed for some time into the future.

Environmental Consequences of the No Action Alternative: No impacts to soils would likely occur.

Mitigation: The following should be attached as COAs:

1. If erosion features such as riling, gullying, piping and mass wasting, attributable to the proposed action occur at anytime in the future, the erosion features will be addressed immediately after observation by contacting the AO and submitting a plan to assure successful soil stabilization with BMPs to address the erosion problems.

2. Access to the BDU 13-8-199 will follow an existing unimproved road. If any portions of this road are not used for the access road they should be obliterated and revegetated.

Finding on the Public Land Health Standard for upland soils: With mitigation this action is unlikely to reduce the productivity of soils impacted by surface disturbing activities, thus the land health standards will be met.

WASTES, HAZARDOUS OR SOLID

Affected Environment: There are no known hazardous or other solid wastes on the subject lands. No hazardous materials are known to have been used, stored, or disposed of at sites included in the project area. The operator does not identify in their APD submissions any hazardous substances to be used during operations associated with this project.

Most of the exploration and production wastes generated during the proposed action would be exempt from the Resource Conservation and Recovery Act (RCRA) hazardous waste regulations (e.g., produced water, produced oil) due to the exception for oil and gas exploration and development activities. However, the exemption does not mean that these wastes present no hazard to human health and the environment, nor would the exemption relieve the operator from corrective action to address releases of exempt wastes. Non-exempt wastes such as lubricants, fuels, caustics or acids, and other chemicals would be used during exploration and production activities and solid waste (e.g., human waste, garbage, etc.) would be generated during the proposed activities. The operator has not specified the chemicals that would be used for drilling, completion, and hydraulic fracturing. Potential environmental impacts from these hydraulic fracturing agents are not well known.

Garbage would be contained onsite in fenced trash containers and then hauled to an approved disposal site. Sewage from trailer houses would be held in holding tanks and transported to an approved sewage disposal facility.

Environmental Consequences of the Proposed Action: No listed or extremely hazardous materials in excess of threshold quantities are proposed for use in this project. While commercial preparations of fuels and lubricants proposed for use may contain some hazardous constituents, they would be stored, used, and transported in a manner consistent with applicable laws such that generation of hazardous wastes is not anticipated. All left-over chemicals and materials would be hauled off-site for use or disposal. Solid wastes would be properly disposed of off-site at an approved facility.

Accidental releases associated with equipment failures, equipment maintenance and refueling, and storage of fuel, oil, other fluids, and chemicals could cause soil, surface water, and/or groundwater contamination. Improper management of pit contents may also contribute to environmental contamination. Releases of produced water would present widespread impacts. The high salinity of produced water may affect plant growth due to the high osmotic pressure of the soil solution, and impact groundwater or surface water through leaching or run-off. The sodicity (i.e., excess sodium) of produced water causes deterioration of the soil structure, thereby

increasing the potential for soil erosion. Leaks of produced water, condensate, and/or natural gas present potential for chronic exposure of potentially hazardous chemical to proximate plants, wildlife, livestock, or people if the fluids encounter ground or surface water. With implementation of the mitigation measures and the Spill Prevention, Control, and Countermeasure (SPCC) Plan described below, impacts would likely be temporary.

Since chemicals that would be used on the site have not been disclosed (specifically chemicals or other additives used for drilling, completion and hydraulic fracturing operations), impacts of unknown severity may occur to groundwater. With proper well completion, impacts between aquifers of varying water quality could potentially occur, but is unlikely due to the vertical displacement of freshwater and the production zones.

The proposed action does not include a long-term storage and containment option for produced fluids and only specifies that produced fluids would be contained in test tanks for up to 90 days. There is no indication if the test tanks will be placed within secondary containment. Drilling fluids will be dewatered and allowed to evaporate dry in the reserve pit, along with the cuttings; however, the proposed action does not specify if the liner of the reserve pit will be removed prior to burial of this material, and/or if the pit contents will be tested for toxicity prior to burial. Some drilling fluid would be recycled and transferred to other locations for reuse, but the proposed action does not specify how the drilling fluids would be transferred (by truck or pipe). There is no indication in the proposed action that the operator would use hydraulic fracturing; therefore, no storage or use of hydraulic fracturing fluids is expected to occur. Solid wastes and sewage would be properly disposed of at an approved facility and therefore impacts are not expected besides the potential for accidental spills during transportation.

Environmental Consequences of the No Action Alternative: No hazardous or other solid wastes would be generated under the no action alternative.

Mitigation: The following items should be added as COAs.

1. Comply with all Federal, State and/or local laws and regulations addressing the emission of and/or the handling, use, and release of any substance that poses a risk of harm to human health or the environment.
2. Employ, maintain, and periodically update to the best available technology(s) aimed at reducing emissions and hazardous material utilization, production and releases through all phases of oil and gas exploration, development, and production.
3. When drilling to set the surface casing, drilling fluid will be composed of fresh water, bentonite and/or a benign lost circulation material – that is a **lost circulation material that does not pose a risk of harm to human health or the environment**, (i.e. cedar bark, shredded cane stalks, mineral fiber and hair, mica flakes, ground and sized limestone or marble, wood, nut hulls, corncobs or cotton hulls).
4. All substances that pose a risk of harm to human health or the environment shall be stored in appropriate containers. Fluids that pose a risk of harm to human health or the environment, including but not limited to frac fluid, produced water, etc., shall be stored in secondary containment systems. Secondary fluid containment systems, including but

not limited to tank batteries of any kind shall be lined with an impervious minimum 24 mil liner.

5. The operator shall submit an updated Spill Prevention Control and Countermeasures Plan (SPCCP) and an updated spill/release contingency plan to the BLM WRFO prior to engaging in construction activities.
6. Construction sites and all facilities shall be maintained in a sanitary condition at all times; waste materials shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.
7. In addition to compliance with the reporting requirements of Notice to Lessee's-#3A and regardless of a substance's status as exempt or non-exempt, report all emissions or releases of any quantity of any substance that may pose a risk of harm to human health or the environment to the BLM WRFO at (970) 878-3800.
8. Regardless of a substance's status as exempt or non-exempt and regardless of fault, provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment. Where the lessee/operator fails, refuses or neglects to provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment, the BLM WRFO may take measures to clean-up and test air, water (surface and/or ground) and soils at the lessee/operator's expense. Such action shall not relieve the lessee/operator of any liability or responsibility.
9. With the acceptance of this authorization or the running of thirty calendar days from its issuance, whichever occurs first, and during oil and gas exploration, development and production under this authorization, the operator, and through the operator, its agents, employees, subcontractors, successors and assigns, stipulates and agrees to indemnify, defend and hold harmless the United States Government, its agencies, and employees from all liability associated with the emission or release of substances that pose a risk to human health or the environment.

WATER QUALITY, SURFACE AND GROUND (includes a finding on Standard 5)

Affected Environment: Surface Water: This project is located in the Yellow Creek drainage. The following water segments may be impacted by this project: The mainstem of Yellow Creek is protected for warm water aquatic life (Warm 2) above Barcus Creek. The warm designation means the classification standards would be protective of aquatic life normally found in waters where the summer weekly average temperature frequently exceeds 20 °C. The Warm 2 designation means that it has been determined that these waters are not capable of sustaining a wide variety of warm water biota. These waters would also have standards that are protective from non-primary contact recreation and agriculture.

Water Quality Classification Table*

Segment	Segment Name	Protected Beneficial Uses		
		Aquatic Life	Recreation	Agriculture
13b	Mainstem of Yellow Creek above the confluence with Barcus Creek	Warm 2	Non Primary Contact	Yes

***** Colorado Department Of Public Health And Environment, Water Quality Control Commission, Regulation No. 37 Classifications and Numeric Standards For Lower Colorado River Basin, Effective June 30, 2010

Groundwater: The project area is located in an area of recharge for the Yellow Creek Watershed. Precipitation in this area generally moves on the surface and in shallow groundwater during spring melt. A portion of annual precipitation infiltrates to deeper bedrock aquifers that contribute to contact springs. These contact springs may have higher than normal horizontal transmissivity from their recharge zones and it is not uncommon to have less than a year or in some cases less than a week movement of shallow groundwater to the surface via fractures faults, and depleted pore space in bedrock materials. Therefore contamination from surface sources or shallow groundwater can quickly be transported to surface waters in this area.

Groundwater occurs in both bedrock and alluvial aquifers beneath Yellow Creek and their tributaries along valley bottoms and are comprised of unconsolidated sand, gravel, silt, and clay. The portion of Yellow Creek above Barcus Creek has interrupted flow characteristics (i.e. some reaches are ephemeral with water moving in the alluvium and other reaches there is surface expression). Surface expression of waters in these drainages depends on the proximity to the surface and the permeability of these alluvial aquifers. Yellow Creek is perennial below Barcus Creek.

Contact springs are common in the area and are often the result of upper bedrock aquifers consisting of fractured, lean oil shales and siltstones of the Green River formation above and below the Mahogany Zone or from fractured marlstone of the saturated portion of the overlying Uinta Formation. The permeability of these sediments can vary dramatically vertically and horizontally thereby resulting in variable porosity and piping that forms groundwater springs.

There are productive water zones in the Upper Parachute Creek Group in the Green River Formation sandwiching the Mahogany, called the A-groove and B-groove with the B-groove below the Mahogany. These groundwater zones are characterized by high horizontal conductivity. In general, the B-groove has higher salinity than the A-groove. Dramatic changes in pressure or porosity due to leached mineral zones can cause drilling fluids to be "lost" to the formation. Leached mineral zones contain features such as fractures and solution cavities.

Perched groundwater zones occur locally within the Uinta Formation. These perched zones can occur in the ridges between surface water drainages and may be manifested as springs and seeps above the valley floor in outcrop areas. Recharge areas for most of these springs and groundwater zones is on the top of the Douglas Plateau and Roan Cliffs, to the south of the project area.

Environmental Consequences of the Proposed Action: The proposed action includes constructing 2 well pads and drilling 1 well per pad. The total surface disturbance is not

expected to exceed 42 acres. The construction of pads will involve removing top soil, earthwork, reclamation and installing stormwater BMPs. Building new access roads will involve stripping the topsoil and winrowing it to the side, digging the barrow ditches and shaping the road crown, replacing the topsoil on cut/fill slopes and barrow ditches, reclamation and stormwater control efforts. Pipeline installation will involve vegetation removal, clearing a work surface, digging a trench and reclamation activities.

Surface Waters: Potential impacts to the surface waters include increased runoff; erosion and sedimentation due to soil disturbance associated with construction activities; increased turbidity and sedimentation in watercourses; and water quality impairment of surface waters; depletion of surface water flows. The magnitude of the impacts to surface water resources depends on the proximity of the disturbance to drainage channels, slope aspect and gradient, degree and area of soil disturbance, soil character, duration of construction activities, and the timely implementation and success/failure of mitigation measures. These pads are located in relatively flat terrain (less than 25% slopes) and on top of a ridge, therefore impacts are not likely from these activities to surface waters.

Impacts should they occur, would likely be greatest shortly after the start of construction activities and would likely decrease in time due to stabilization, reclamation, and revegetation efforts. Changes in surface hydrology from road construction would continue through the life of the project and may extend beyond the project life if roads are left in place. For example, soil compacted on roadways and well pads contribute greater run-off than undisturbed sites. Surface disturbance would increase wind and water erosion and change soil properties leading to increased run-off and rain splash erosion. The amount of additional sediment that would reach drainages downstream of the project area depends on natural factors and the effectiveness of the site-specific stormwater management plan for each well. Natural factors which attenuate the transport of sediment into creeks include water available for overland flow; the texture of the eroded material; the amount and kind of ground cover; the slope shape, gradient, and length; and surface roughness.

Groundwater: Known water bearing zones in the project area are generally above the Wasatch Formation. These include the contact springs, perched aquifers and groundwater zones described in the Affected Environment. Proposed surface casing would be below the top of the Wasatch Formation, thus ensuring continued integrity and functionality of the groundwater resources identified. If a surface casing fails, circulation is lost and/or cementing is poor, there is a potential for commingling of drilling water with waters from the upper and lower aquifers, or cross contamination of groundwater zones. The commingling of such water could result in localized contamination of aquifers from more saline waters in deeper formations. With proper drilling and completion practices, mixing of lower aquifers with the upper or alluvial aquifers and the contamination of groundwater resources is unlikely.

Environmental Consequences of the No Action Alternative: No impacts identified.

Mitigation: The following should be attached as COAs.

1. Locate culverts or drainage dips in such a manner as to avoid discharge onto unstable terrain such as headwalls or slumps. Provide adequate spacing to avoid accumulation of water in ditches or road surfaces. Install culverts with adequate armoring of inlet and outlet. Patrol areas susceptible to road or watershed damage during periods of high runoff.
2. Keep road inlet and outlet ditches, catchbasins, and culverts free of obstructions, particularly before and during spring run-off. Routine machine-cleaning of ditches should be kept to a minimum during wet weather. Leave the disturbed area in a condition that provides drainage with no additional maintenance.
3. Culverts and waterbars should be installed according to BLM Manual 9113 standards and sized for the 10-year storm event with no static head and to pass a 25-year event without failing.

Finding on the Public Land Health Standard for water quality: It is unlikely that the access road and well pad construction, as well as drilling and production activities would result in an exceedence of state water quality standards. Cumulative impacts from this activity and others may eventually impact sediment yields to the degree that they impact listing of Yellow Creek on the 303d list of Impaired Waters.

WETLANDS AND RIPARIAN ZONES (includes a finding on Standard 2)

Affected Environment: There are no riparian or wetland resources that have the potential to be influenced by the proposed action. Both locations are situated on ridgelines. Yellow Creek, representing the nearest system supporting riparian vegetation, is separated from the 13-8-199 location by over five miles of ephemeral channel. Stake Springs Draw, an intermittent system, is separated by nearly 0.50 miles of ephemeral channel from the 1-9-299 location. This system supports low densities of riparian species including sedge, bulrush and spike rush.

Environmental Consequences of the Proposed Action: Construction of the proposed well pads and associated access roads and pipelines would have no direct impact on riparian habitats. With the application of BMPs associated with soil erosion there is no reasonable likelihood that fugitive sediments would have any influence on the function or condition of the Stake Springs Draw or Yellow Creek channel.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have any direct or indirect influence on downstream riparian habitats.

Mitigation: None

Finding on the Public Land Health Standard for riparian systems: The nearest BLM-administered reaches are located between 0.50 and 5 miles from the proposed locations. Neither the proposed nor the no action alternative would have any reasonable potential to influence the function or condition of the Stake Springs or Yellow Creek channels or their riparian values.

VEGETATION (includes a finding on Standard 3)

Affected Environment: Vegetation in the project area is dominated by mixed age stands of pinyon–juniper woodlands interspersed with Wyoming big sagebrush parks. The corresponding ecological site for the Wyoming big sagebrush parks is Rolling Loam. Many areas of the Rolling Loam ecological sites in the project area have some level of pinyon–juniper invasion starting to occur. Well pad 13-8-199 was moved from an unencroached big sagebrush park to an area where there are some pinyon and junipers beginning to establish.

Environmental Consequences of the Proposed Action: The proposed action will create a total of 41.87 acres of new earthen disturbance. The principal impact to vegetation will be complete removal of vegetation on the well sites, access roads and pipelines, and the earthen disturbance associated with it. In terms of plant community composition, structure, and function, the principal negative impact over the long term would occur if cheatgrass or noxious weeds are allowed to establish and proliferate on the disturbed areas resulting from pad and access road construction.

Environmental Consequences of the No Action Alternative: There will be no change from the present situation.

Mitigation: All seeding shall be completed using BLM Native Seed Mix #3 in the 1997 WRFO ROD/RMP. The seed mix is displayed in the table below. Please note that seed rates shown are the drill seeding rates, and broadcast seeding shall be done using double the rate.

Seed Mix #	Species	Variety	lbs PLS /Acre
3	Western wheatgrass	Rosana	2
	Bluebunch wheatgrass	Secar	2
	Thickspike wheatgrass	Critana	2
	Indian ricegrass	Rimrock	1
	Fourwing saltbush	Wytana	1
	Utah sweetvetch		1

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial)*:* Vegetation in the project area currently meets the Standard on a watershed basis and is expected to continue to meet the Standard in the future following implementation of the proposed action.

INVASIVE, NON-NATIVE SPECIES

Affected Environment: The only noxious weed known to occur directly in the project area is cheatgrass. Cheatgrass is an annual, invasive/noxious weed species that is present along roads and in areas of unvegetated earthen disturbance. Other noxious weeds such as houndstongue (*Cynoglossum officinale*), Russian knapweed *(Acroptilon repens*), spotted

knapweed (*Centaurea maculosa*), yellow toadflax (*Linaria vulgaris*), leafy spurge (*Euphorbia esula*), common mullein (*Verbascum thapsus*), Canada thistle (*Cirsium arvense*), and bull thistle (*Cirsium vulgare*) are present in the vicinity of the proposed action.

Environmental Consequences of the Proposed Action: Implementation of the proposed action will create 41.87 acres of new earthen disturbance. The new earthen disturbance will provide safe-sites for the establishment and proliferation of noxious weeds. There is also the risk of other noxious weed species being transported on the site by construction and/or support equipment.

Prompt reclamation with successful establishment would aid in the prevention of noxious weeds establishing on disturbed sites. If noxious weeds are detected on the site, prompt spot control would prevent invasion of the site and movement to adjacent plant communities.

Environmental Consequences of the No Action Alternative: Construction of the well pads and associated access routes and pipeline corridors would not be approved, and there will be no change from the present situation.

Mitigation: See mitigation in the proposed action.

THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES (includes a finding on Standard 4)

Affected Environment: The proposed BDU 13-8-199 well pad is located approximately 0.75 miles south of the Duck Creek Area of Critical Environmental Concern (ACEC). This ACEC is known to provide habitat for *Physaria congesta*, a federally listed threatened species under the Endangered Species Act. *P. congesta* is most often found on white shale hilltops associated with the Thirteen Mile Creek Tongue of the Green River Formation. The closest expression of Thirteen Mile Creek Tongue is located approximately 0.87 miles from the proposed BDU 13-8-199 well pad.

Because the proposed development would take place in such close proximity to the Duck Creek ACEC and outcrops of the Thirteen Mile Creek Tongue, a full botanical inventory within 600 meters of BDU 13-8-199 was requested by the BLM. The survey was performed by WestWater Engineering (WWE) in spring 2010. WWE found neither occupied nor suitable habitat for *P. congesta* within the 600 meter survey area.

Environmental Consequences of the Proposed Action: As the nearest special status plant habitat is located more than 600 meters from the proposed development, the proposed action is not expected to affect special status plant species or associated habitats.

Environmental Consequences of the No Action Alternative: The no action alternative is not expected to affect special status plant species or associated habitats.

Mitigation: None

Finding on the Public Land Health Standard for Threatened & Endangered species: The proposed and no action alternatives are not expected to affect populations or habitats of plants associated with the Endangered Species Act or BLM-sensitive species and, as such, should have no influence on the status of applicable land health standards.

THREATENED, ENDANGERED, AND SENSITIVE ANIMAL SPECIES (includes a finding on Standard 4)

Affected Environment: There are no threatened or endangered animal species that are known to inhabit or derive important use from the project area. Piñon-juniper woodlands surrounding the 1-9-299 location have extremely limited potentially to provide habitat for northern goshawk, a BLM-sensitive species. Goshawks are a relatively rare resident in the White River Resource Area. In general this species prefers to nest in contiguous aspen stands, or spruce-fir/aspen mix stands. Within the last several decades however, approximately half a dozen nests have been found in low to mid elevation piñon-juniper woodlands throughout the Piceance Basin. Much of the woodlands surrounding the 1-9-299 location are younger aged and generally not favored for nesting. A raptor survey was conducted by WWE during June 2010. No active goshawk nests were observed within the vicinity of the project area.

Both piñon and juniper may also provide potential roost sites for Townsend's big-eared bat and fringed and Yuma myotis, all BLM-sensitive species. The overall abundance of bats in the project area is likely constrained by the paucity of maternity and hibernation roost habitat that could be expected to harbor larger numbers of bats (e.g., caves, mines, buildings) and use of the project area is likely limited to the support of small numbers of non-breeding animals during the summer months.

See discussion on BLM-sensitive aquatic species in Aquatic Wildlife section.

Environmental Consequences of the Proposed Action: The proposed action would directly remove about 8-10 acres of piñon-juniper woodlands. These woodland communities can take anywhere from one hundred to several hundred years (depending on age) to return to preconstruction conditions. Woodlands involved with the development of the 1-9-299 location are generally younger aged and structurally do not provide adequate nesting features for northern goshawk. Although possible, the potential for these woodlands to support a nesting goshawk is extremely low.

Pad development outside the breeding season would have little to no potential to directly impact northern goshawk nesting activities. Should pad development be delayed until the 2011 breeding season, a raptor survey (spot-check of existing nests) will be required for the 1-9-299 location. Results will be submitted to the BLM wildlife staff prior to construction initiation. Should an active nest be located, appropriate timing restrictions will be applied.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have any direct or indirect influence on special status species.

Mitigation: See mitigation regarding woodland raptors in Terrestrial Wildlife section.

Finding on the Public Land Health Standard for Threatened & Endangered species: The area potentially influenced by the proposed and no action alternatives does not currently support habitats associated with listed animal species, therefore, neither alternative would influence the applicable rangeland health standards. The project area currently meets applicable land health standards for sensitive animal species at the landscape scale. Neither the proposed nor the no action alternative would detract from the continued meeting of these standards.

MIGRATORY BIRDS

Affected Environment: Pad 13-8-199 is located along a wide ridgeline approximately 0.20 miles from an undeveloped two-track road. The pad itself is situated in an expansive Wyoming big sagebrush park with low density juniper encroachment. The understory is well intact with species such as beardless blue bunch grass and Indian ricegrass. Pad access (new disturbance) traverses through an open-canopied piñon-juniper stand which contains larger, mature trees.

Pad 1-9-299 is situated along a narrow ridgeline immediately adjacent to an existing pipeline corridor. The pad is located in a predominately younger aged piñon-juniper stand, however some larger trees are scattered throughout. The understory is fairly open and rocky with low density Wyoming big sagebrush, bitterbrush and rabbit brush. Herbaceous ground cover is minimal and comprised of perennial species such as Indian ricegrass and Sandberg bluegrass. Pad and pipeline access will follow both existing road and pipeline corridors.

The lower elevation (6600 - 6700 ft) sagebrush and piñon-juniper communities provide suitable nesting habitat for several species of migratory birds during the breeding season (May 15 – July 15). The only Birds of Conservation Concern (BOCC; designated regionally by the US Fish and Wildlife Service (USFWS) for long-term declining population trends) within the project area are Brewer's sparrow (sagebrush communities) and juniper titmouse (piñon-juniper woodlands).

Although these locations have no open water or wetland areas that support or attract waterfowl use, the development of reserve pits that contain drilling fluids have attracted waterfowl use, at least during the migratory period (i.e., local records: mid-March through late May; mid-October through late November).

Environmental Consequences of the Proposed Action: Construction of the 1-9-299 location would directly remove approximately 8-10 acres of piñon-juniper woodlands (pad construction), 10 acres of grass and shrublands adjacent to an existing ROW (pipeline), and 3.5 acres of sagebrush communities (road upgrade). Construction of the 13-8-199 location would directly remove approximately 19 acres of sagebrush habitat (pad construction, road re-alignment and pipeline installation) and1 acre of sagebrush/ piñon-juniper communities (new road construction). Under natural succession regimes, these communities would take anywhere from 20-30 years (sagebrush) to several hundred years for piñon-juniper (depending upon stand age) to return to preconstruction conditions.

Indirectly the proposed action could impact an additional 38 acres (associated mainly with pad development) of functional forage and cover resources due to reductions in nest densities and avoidance of habitats associated with increased human activity, vehicle traffic and construction activities. Pipeline installation and road upgrades would likely have less of an impact as nest densities generally tend to be reduced adjacent to existing corridors/disturbances.

Should pad construction take place during the migratory bird nesting season (generally May 15 – July 15), there would be greater chance of displacement of birds, nest abandonment and potential mortality (mainly of nestlings). Based on breeding bird densities in the White River Resource Area, the proposed action has the potential to displace up to 20 nesting pair, which likely would be more generalized species, but may include some species of higher concern. Discussions with Mesa Energy personnel took place at the onsite (conducted 4/22/10) and it was agreed upon that in an effort to minimize displacement and nest loss/abandonment, all earthwork (vegetation removal) associated with development of the proposed locations and new access roads would take place outside of the migratory bird nesting period (May 15 – July 15).

It has been brought to BLM's attention that in certain situations migratory waterfowl have contacted drilling or frac fluids (i.e., stored in reserve pits) during or after completion operations and are suffering mortality in violation of the MBTA. The extent and nature of the problem is not well defined, but is being actively investigated by the federal agencies and the companies. Until the vectors of mortality are better understood, management measures must be conservative and relegated to preventing bird contact with frac and drilling fluids that may pose a problem.

Environmental Consequences of the No Action Alternative: There would be no conceivable influence on migratory birds under the no action alternative.

Mitigation: The operator shall prevent use by migratory birds of reserve pits that store or are expected to store fluids which may pose a risk to such birds (e.g., migratory waterfowl, shorebirds, wading birds and raptors) during completion and after completion activities have ceased. Methods may include netting or other alternative methods that effectively prevent use and that meet BLM approval. It will be the responsibility of the operator to notify the BLM of the method that will be used to prevent use two weeks prior to when completion activities are expected to begin. The BLM approved method will be applied within 24 hours after completion.

All earthwork (vegetation removal) associated with pad and new access road development for both locations will take place outside of the migratory bird nesting season (May 15 – July 15).

WILDLIFE, AQUATIC (includes a finding on Standard 3)

Affected Environment: The nearest system supporting higher-order aquatic vertebrate populations is Yellow Creek. The lower reaches of this system (below Barcus Creek) provide habitat for native fish species such as speckled dace and mountain sucker, a BLM sensitive species. Fish populations have not been documented above the Barcus Creek confluence. Northern leopard frog, another BLM sensitive species have also been documented along the

lower reaches of Yellow Creek. The proposed pad locations are separated by a minimum of 15 channel miles from the lower reaches of Yellow Creek.

Environmental Consequences of the Proposed Action: Construction of the proposed well locations and associated access roads and pipelines would have no direct impact on aquatic resources. With the application of BMPs associated with soil erosion there is no reasonable likelihood that fugitive sediments would have any influence on the function or condition of the Yellow Creek channel, its aquatic wildlife or associated habitats.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have any direct or indirect influence on downstream aquatic habitat.

Mitigation: None

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Terrestrial): The nearest reach supporting aquatic wildlife is at a minimum over 15 miles downstream from the project area. Neither the proposed nor the no action alternative would have any reasonable potential to influence the function or condition of the Yellow Creek channel or its aquatic habitat values.

WILDLIFE, TERRESTRIAL (includes a finding on Standard 3)

Affected Environment: The mid elevation Wyoming big sagebrush and piñon-juniper woodlands that encompass the project area are categorized as big game general winter range (location 13-8-199) and mule deer severe winter range (location 1-9-299). These ranges are used by deer throughout the winter, but particularly during the late winter and early spring period.

Piñon-juniper woodlands surrounding the 1-9-299 location may potentially provide habitat for woodland raptors. Much of the piñon-juniper woodlands involved are younger aged and although generally not favored by accipitrine hawks, may hold some nesting potential. Scattered mature trees located on the east and southern edges of the 13-8-199 location may provide nesting substrate, although the potential is extremely low. There are no cliffs or rock outcrops associated with either location. A raptor survey was conducted by WWE in June 2010. Two active nests (Cooper's hawk and great-horned owl) were located; 1 within 0.28 miles and 1 within 0.60 miles of well pad 1-9-299. Both nests, each of which is located on private surface, are < 0.10 mile from the existing pipeline corridor. No nests were observed within the vicinity of the 13-8-199 site.

Small mammal populations are poorly documented; however, the 20 or so species that are likely to occur in this area are widely distributed and display broad ecological tolerance throughout the Great Basin or Rocky Mountain regions. It is likely that the small mammal community associated with the project area is represented by relatively few generalized species, such as deer mouse and least chipmunk. No narrowly distributed or highly specialized species or subspecific populations are known to occur in the project area.

Environmental Consequences of the Proposed Action: The proposed action would directly remove approximately 24 acres of sagebrush communities, 10 acres of grass/shrublands (associated with existing pipeline corridor) and 8-10 acres of piñon-juniper woodlands. These communities provide forage and cover resources for big game and non-game species alike. Under natural succession regimes these communities would take anywhere from 20-30 years (sagebrush) to several hundred years (piñon-juniper) to return to preconstruction conditions following reclamation. The long term occupation of roughly 5 acres of severe winter range would likely have minor localized influence on big game forage availability, however there are cumulative connotations. Timely and effective interim reclamation on the pads and pipelines are important to help offset herbaceous forage losses and accelerate the reestablishment of woody forage and cover components for all resident wildlife. It is suspected that once the completion phase has ended wildlife would make greater use of the area.

Pad development outside the raptor breeding season would have little to no potential to directly impact raptor nesting activities. Should pad development be delayed until the 2011 breeding season, a raptor survey (spot-check of existing nests) will be required for the 1-9-299 location. Results will be submitted to the BLM wildlife staff prior to construction initiation. Should an active nest be located, appropriate timing restrictions will be applied.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have any direct or indirect influence on terrestrial wildlife or associated habitats.

Mitigation: There will be no construction and/or drilling activities allowed on the 1-9-299 location from January 1 – April 30 to avoid unnecessary activity in mule deer severe winter range. WRFO will except/modify RMP-prescribed timing limitations for those projects (via SN) where there is written documentation affirming mutual consent among Colorado Division of Wildlife (CDOW), the project proponent, and BLM. Outside such agreements, WRFO will consider excepting/modifying prescribed timing limitations upon written request from CDOW on a project proponent's behalf.

Should construction be delayed into the 2011 breeding season, a raptor survey (spot-check of existing nests) will be required and results provided to BLM staff biologists prior to construction. All raptor surveys will be performed following methods and procedures described in the WRFO Diurnal Raptor Survey Protocol. The third-party contractor responsible for conducting raptor surveys associated with the proposed action will contact the WRFO and request the most current version of the WRFO Diurnal Raptor Survey Protocol prior to performing surveys. Should an active nest be located, no development activities will be allowed within ¼ - ½ mile (depending on species) of the identified nest site from February 1 through August 15 or until young have fledged and dispersed from the nest stand (TL-01 and 04 WRFO ROD). No surface occupancy would be allowed within ¼ mile of identified nests (NSO-02 and 03 WRFO ROD).

All raptor nests (e.g., stick-built structures, nest cavities, eyries), regardless of their breeding or non-breeding season status, are to be reported to WRFO Natural Resource Specialist, Brett Smithers (see contact information below) via phone (970-878-3818) or by email (preferred; brett_smithers@blm.gov) within 24 hrs of the observation. Please provide the following when

reporting nests: 1) the species observed using the nest; 2) UTM coordinates for the nest (recorded in NAD83, Zone 12); 3) date nest was first documented; 4) brief summary describing adult and/or juvenile behavior, number of nestlings observed, etc.; and, 5) relevant project information (e.g., project name and NEPA document number, if known) .

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Aquatic): Overall, the project area meets the land health standards on a landscape scale. The proposed action is expected to incrementally reduce local habitat capacity over the life of the project. As conditioned by reclamation-related provisions, implementation of the proposed action would not interfere with continued landscape level maintenance of the land health standards.

WILD HORSES

Affected Environment: The project area lies within the 84 Mesa and Square S, Pasture C portions of the 190,130 acre Piceance-East Douglas Herd Management Area (PEDHMA) which are known as high use areas by wild horses within the PEDHMA. This portion of the PEDHMA, which contains prime year-long wild horse habitat, is primarily comprised of stony foothills and pinyon-juniper woodlands. Pinyon-juniper woodlands provide cover habitat required by horses. Use of this cover type is more predominant during the summer months for shade and during severe winter storms (BLM 1981). Forage competition between wild horses, livestock, and wildlife species exists throughout the project area.

BLM manages the PEDHMA herd in a manner designed to ensure a healthy, viable breeding population. Foaling season for this herd occurs from approximately March 1 to June 15 each year. To maintain the appropriate management level (AML), the BLM occasionally gathers and removes wild horses from the PEDHMA and offers them to the public through an adoption program. The next scheduled gather for the PEDHMA is planned for October 2010. The current AML range for the PEDHMA is 135-235 wild horses. Based on population models for the herd, an estimated population is around 318 animals (BLM 2010).

The movement of wild horses in the PEDHMA is largely influenced by seasonal factors, fences, access to water supplies, and available forage. Horses tend to concentrate on windswept ridges and south-facing slopes during periods of deep snow. During summer and early fall, water availability influences wild horse movement. Fences used to control livestock or built as exclosures can deter the free-roaming behavior of the herd and are not allowed. Fences such as the exclosure fence in Duck Creek include several gaps placed in appropriate locations to allow for both water access and passage to the other side.

Environmental Consequences of the Proposed Action: Wild horses inhabiting the project area would be temporarily displaced during project activities. Each of the proposed locations could affect the PED wild horse herd; however, the proposed action is not expected to impact the herd population to drop to levels below the AML range of 135-235 animals. Impacts to wild horses from oil and gas development have not been widely studied or documented. Inferences regarding potential impacts to wild horses utilizing the portion of the PEDHMA in the project

area are largely based on anecdotal information and observations of the effects of oil and gas activities on the herd, and on known impacts to other large mammals (e.g., mule deer and cattle) that are dependent upon similar habitats and also forage within the project area.

Implementation of the proposed action could result in direct and indirect impacts to wild horses in the project area. Surface disturbing activities associated with the proposed locations and their associated roads and pipelines would result in the direct, initial loss of approximately 41.87 acres of habitat cover and forage in the portion of the PEDHMA in the project area. For wild horses that do not avoid development activities, cattle guards, where installed, could increase the potential for injuries to wild horses (e.g., hooves and legs caught in or through the brace assembly). There is also the potential for horses to become trapped should they fall into an open trench. Further, increased traffic on access roads in the project area could also increase the potential for harassment of, and vehicle collisions with, wild horses. Increased traffic on project area roads could also result in young foals becoming dislocated from their mares.

Impacts to wild horses would likely be greatest if increased human presence associated with construction, drilling, and completion activities were to take place during the foaling period (March 1 through June 15) or during the next potential gather. As intensive development activities would be delayed for a specified 60-day period from within the window of March 1 through June 15, as outlined by the White River ROD/RMP, impacts during this sensitive time period would be reduced. Further, project activities may need to be adjusted around a wild horse gather if scheduled during the same time as the gather which is currently planned for October 2010.

Interim reclamation, if successful, would be realized on approximately 22 acres (or 50 percent) of the estimated 41.87 acres of total initial surface disturbance. As such, residual surface disturbance in the portion of the PEDHMA in the project area would be approximately 22 acres. Successful final reclamation on the remaining on the affected acres would restore the lost wild horse habitat and forage in the long-term.

Environmental Consequences of the No Action Alternative: Under the no action alternative, impacts to wild horses resulting from ongoing energy development activities in the project area would remain unchanged from current levels and trends.

Mitigation:

1. All installed cattle guards at fence crossings associated with access roads and/or a pipelines to a well location will be upgraded to a horse proof cattle guard so that the risk of wild horses being trapped in any of the installed cattle guards is reduced.

2. It is necessary for the company to make preconstruction contact with the WRFO in order to determine if any of the following mitigation is warranted: In order to protect wild horses within this area, development activities may be delayed for a period in excess of 60 days during the spring foaling period between March 1 and June 15. The lessee may also be required to perform special conservation measures within this area including: 1) habitat improvement projects in adjacent areas if development displaces wild horses from

critical habitat, 2) disturbed watering areas would be replaced with an equal source of water having equal utility, and 3) activity/ improvements would provide for unrestricted movement of wild horses between summer and winter ranges.

3. In wild horse use areas, open trenches for burial of gathering pipelines should be inspected daily to reduce the potential for horses to become trapped should they fall into a trench.

4. Should the proposed action occur simultaneous with a wild horse gather, all project-related traffic would need to be coordinated with the BLM and the contractor for the gather.

5. To minimize the incidents of young foals becoming dislocated from their mares, drilling and receiving crews would be required to slow or stop when wild horses are encountered, allowing bands to move away at a pace slow enough so that the foals can keep pace and are not separated.

CULTURAL RESOURCES

Affected Environment: The area of the proposed well pads, access roads and well tie pipelines has been inventoried at the Class III (100% pedestrian) level (Conner et a. 2004, Compliance Dated 12/17/2004 2008 Compliance Dated 5/26/2009, Pennefather-O'Brien et al. 1992 Compliance Dated 12/17/1992, Piontkowski 2006 Compliance Dated 5/3/2006, Schwendler et al. 2008, Compliance Dated 2/11/2009) with only one site located within the area of potential effect for the project. The site is recorded as a historic refuse deposit (site 5RB.4942) which the BLM and the Colorado State Historic Preservation Officer (SHPO) have determined to be ineligible for listing on or nomination to the National Register of Historic Places. (SHPO 1/19/2005, COMPASS online database accessed 6/2/2010)

Environmental Consequences of the Proposed Action: The project, as proposed will result in the partial or total destruction of site 5RB.4942, a historic refuse scatter that probably relates to the early days of settlement in the area. The site has been officially determined to be ineligible for nomination to or listing on the National Register of Historic Places. Detailed recording of the site has likely preserved all the data current technology will permit and the loss to the regional data base, while permanent and irretrievable, will not be significant or seriously detrimental to the overall cultural database of the region.

Environmental Consequences of the No Action Alternative: There would be no new impacts to cultural resources under the no action alternative.

Mitigation:

1. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are

uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the AO. Within five working days the AO will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary)
- a timeframe for the AO to complete an expedited review under 36 CFR 800-11 to confirm, through the (SHPO), that the findings of the AO are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

2. Pursuant to 43 CFR 10.4(g) the holder of this authorization must notify the AO, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.

PALEONTOLOGY

Affected Environment: The proposed project lies in an area generally mapped as the Uinta Formation (Tweto 1979) which the BLM, WRFO has classified as a Potential Fossil Yield Classification PFYC 4/5 formation meaning it is known to produce fossils of scientific importance (cf Armstrong and Wolny 1989). Inventory in the area has identified a non-vertebrate fossil where a portion of the access road is proposed (Erathem-Vanir 2005, Compliance Dated 7/11/2005) and excavations could likely reveal more fossils.

Environmental Consequences of the Proposed Action: If it becomes necessary to excavate into the underlying rock formation to construct the access road, level the well pad, excavate the reserve/blooie/cuttings pit or bury the well tie pipelines there is a potential to impact scientifically important fossil resources.

Environmental Consequences of the No Action Alternative: There would be no new impacts to paleontological resources under the no action alternative.

Mitigation:

1. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing paleontological sites, or for collecting fossils. If fossil materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the AO. Within five working days the AO will inform the operator as to:

   - whether the materials appear to be of noteworthy scientific interest
   - the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not feasible)

   If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.
2. If it becomes necessary to excavate into the underlying rock formation to construct the access road, level the well pad, excavate the reserve/blooie/cuttings pit or bury the well tie pipeline a paleontological monitor shall be present for any such excavations.

ELEMENTS NOT PRESENT OR NOT AFFECTED:

No flood plains, prime and unique farmlands, exist within the area affected by the proposed action. There are also no Native American religious or environmental justice concerns associated with the proposed action.

OTHER ELEMENTS: For the following elements, only those brought forward for analysis will be addressed further.

Other Element	NA or Not Present	Applicable or Present, Not Brought Forward for Analysis	Applicable & Present and Brought Forward for Analysis
Visual Resources			X
Fire Management			X
Forest Management			
Hydrology/Water Rights		X	
Rangeland Management			X
Realty Authorizations			X
Recreation			X
Access and Transportation			X

Other Element	NA or Not Present	Applicable or Present, Not Brought Forward for Analysis	Applicable & Present and Brought Forward for Analysis
Geology and Minerals			X
Areas of Critical Environmental Concern	X		
Wilderness	X		
Wild and Scenic Rivers	X		
Cadastral	X		
Socio-Economics			
Law Enforcement			

VISUAL RESOURCES

Affected Environment: The proposed action is located within a Visual Resource Management (VRM) Class III area. The objective of the VRM Class III area is to partially retain the existing character of the landscape. The casual observer traveling through the area may be briefly attracted to the activities but this will not dominate the view. The area is currently being developed for fluid minerals. There are well pads within 0.5 miles of the proposed 1-9-299 and 13-8-199 locations.

Environmental Consequences of the Proposed Action: Both wells are located in a manner where they will not be easily visible to the casual observer traveling CR 24X, 20 or 91. The general public who will most likely be using the area are hunters (confined mainly to the fall and winter months) and/or oil and gas field employees. These groups generally travel main county roads and/or other available routes open to the public. The pipeline from 1-9-299 will be visible to the casual observer traveling CR 24X, as the pipeline lies adjacent to the road. The pipeline will be visible until revegetation is successful. By painting all above ground facilities juniper green to mimic the surrounding vegetation, the level of change to the characteristic landscape would be less than moderate and the objectives of the VRM III classification would be retained.

Environmental Consequences of the No Action Alternative: There would be no activities that will attract the attention of the casual observer.

Mitigation: All permanent (onsite for six [6] months or longer) structures, facilities and equipment placed onsite shall be painted and maintained using Munsell Soil Color Chart Juniper Green or equivalent within six months of installation.

FIRE MANAGEMENT

Affected Environment: The proposed action falls within two fire management polygons. Both the 1-9-299 and 13-8-199 well pads are located within the B6 Yellow Creek fire management polygon. The vegetation within this polygon is characterized as pinyon-juniper woodland, Wyoming big sagebrush, and greasewood. Naturally ignited wildland fire played a role in the function of the ecosystem but where unwanted, wildland fire could have a negative

impact without mitigation. Wildland fires in this polygon pose a risk to privately-owned lands, industry developments, cultural resources, and critical habitats for wildlife and threatened and endangered plants.

Environmental Consequences of the Proposed Action: Due to the existing pinyon-juniper cover, there will be a need for the operator to clear some trees. If not adequately treated, these trees will result in elevated hazardous fuels conditions and remain on-site for many years. Vegetation removal and soil disturbance could provide an opportunity for noxious weeds and cheatgrass to establish or expand in the area, which would increase fuel loads. These accumulations of dead material are very receptive to fire brands and spotting from wind driven fires and can greatly accelerate the rate of spread of the fire front. If not treated the slash and woody debris will create an elevated hazardous dead fuel loading which could pose significant control problems in the event of a wildfire. Additionally there would be greater threat to the public, operator personnel, and fire suppression personnel.

The National Fire Plan calls for "firefighter and public safety" to be the highest priority for all fire management activities. During pipeline construction associated with the proposed project, fire management may have little choice but to suppress all fires within close proximity to the project area. This aggressive fire suppression response will prevent fire from playing a natural role in creating a vegetation mosaic.

Environmental Consequences of the No Action Alternative: There are no consequences to fire management under the no action alternative.

Mitigation: The following should be attached as COAs:

1. When working on lands administered by the BLM WRFO, notify Craig Interagency Dispatch (970-826-5037) in the event of any fire. The reporting party will inform the dispatch center of fire location, size, status, smoke color, aspect, fuel type and contact information. The reporting party, or a representative of, should remain nearby in order to make contact with incoming fire resources to expedite actions taken towards appropriate management response (AMR). The applicant and contractors will not engage in any fire suppression activities outside the approved project area.

2. Accidental ignitions caused by welding, cutting, grinding, etc. will be suppressed by the applicant only if employee safety is not endangered and if the fire can be safely contained using hand tools and portable hand pumps. If chemical fire extinguishers are used the applicant must notify incoming fire resources on extinguisher type and the location of use.

3. Natural ignitions caused by lightning will be managed by federal fire personnel. If a natural ignition occurs within the approved project area, the fire may be initially contained by the applicant only if employee safety is not endangered. The use of heavy equipment for fire suppression is prohibited, unless authorized by the Field Office Manager.

4. Slash and woody debris associated from the disturbance shall follow mitigations as written under Forest Management.

FOREST MANAGEMENT

Affected Environment: The proposed well and pipeline location for 1-9-299 and a small portion of the access road for well 13-8-199 is located within a mature productive exposure stand class of pinyon-juniper woodland as defined by research performed by WRFO personnel from 2003-2005. Productive exposure types occur on primarily lower gradient slopes and north and east aspects. Growth rates are higher in these areas due to soil features which allow for effective use of precipitation. Mature pinyon-juniper trees on productive exposure establish themselves as the dominant plant community on the site. Young pinyon-juniper trees are a component of the entire plant community. Young trees tend to invade sagebrush communities over time. The pinyon-juniper stands associated with the proposed disturbance are considered commercial. Commercial woodlands are considered as producing greater than 8 cords per acre with half of the volume being pinyon (pg 3-19, White River Resource Area Draft RMP 1994). Both the young and mature stands are valuable locally as a source of fire wood and posts for fence construction.

Environmental Consequences of the Proposed Action: As discussed during the onsite on 04/22/2010, the access road into 13-8-199 will follow a natural corridor in the pinyon-juniper stand. The natural corridor width would allow for the necessary road and pipeline construction and cause minimal to no damage of the surrounding mature pinyon-juniper trees.

The following table shows the estimated loss of woodland for well 1-9-299. Following reclamation of associated disturbances it is expected that pinyon and juniper will invade the site within 70 years and would develop a mature stand within 250-350 years. Under the proposed action approximately 11.8 acres of woodlands would be removed. The loss of pinyon-juniper woodland would adversely affect wildlife and nesting habitat. Impacts would be long-term until woodlands regenerate successfully. Removal of mature and middle-aged pinyon and juniper trees would reduce the potential for outbreak of woodland diseases and pest infestations. Erosion potential would increase with the removal of vegetation, especially at sites where tree density and canopy cover has naturally decreased the understory component of grasses, shrubs, and forbs. Acceptance of mitigation measures outlined in this section and the fire management section would reduce the build-up of cleared woody material from the proposed action, reducing the likelihood of slash contributing to possible large fire events.

Well Name	Acreage In Woodlands					
	Pad Acres	Access Rd. (Ac)	Pipeline	Acres Disturbed (Total)	Stand Class	Total Cords
1-9-299	5.7	.1	6	11.8	Productive Mature	59

Environmental Consequences of the No Action Alternative: There would be no activities disturbing areas populated with pinyon-juniper.

Mitigation: The following should be attached as COAs:

1. In accordance with the 1997 White River RMP/ROD pages 2-22, all trees removed in the process of construction shall be purchased from the BLM.

2. Trees or shrubs that must be removed for construction or ROW preparation shall be cut down to a stump height of 6 inches or less prior to other heavy equipment operation ensuring that there are adequate woody materials for reclamation. Trees removed for construction that are not needed for reclamation purposes shall be cut in four foot lengths (down to 4 inches diameter) and placed in manageable stacks immediately adjacent to a public road to facilitate removal by the public or removed for company use. Woody materials required for reclamation shall be stockpiled along the margins of the authorized use area. It is recommended to chip the smaller limbs and, the boles and limbs of the larger trees should be retained for redistribution. Once the disturbance has been recontoured and reseeded, stockpiled woody material shall be scattered across the reclaimed area where the material originated. Chipped material shall be scattered across reclaimed areas in a manner that avoids the development of a mulch layer that suppresses growth or reproduction of desirable vegetation. Redistribution of woody debris will not exceed 20% ground cover. Woody material will be distributed in a manner that effectively deters vehicle use. Materials would be distributed in such a way to avoid large concentrations of heavy fuels.

RANGELAND MANAGEMENT

Affected Environment: The proposed well pad and associated pipeline and access routes for 1-9-299 are located within the Square S (06027) grazing allotment. The Square S grazing allotment is used in common by two permittes (Mantle Ranch and LOV Ranch). The grazing schedule for the allotment is outlined below:

Allot #	Allotment /Permittee	Permit #	Livestock		Period of Use	% Public Land	Allotment Acreage	Permitted AUMs
			#	Kind				
6027	Square S-LOV Ranch	504241	100	C	3/1-05/15	96	64050	410
			500	C	5/16-6/10	96		178
			600	C	6/11-7/30	18		578
			300	C	10/16-12/15	96		477
			100	C	12/16-2/28	96		795
6027	Square S-Mantle Ranch	51432	190	C	04/15-06/15	66		256
			46	C	04/15-07/15	66		92
			75	C	05/01-07/15	66		124
			140	C	07/16-10/01	66		237
			250	C	10/02-10/21	66		108
			80	C	11/30-04/30	66		264

The proposed well pad and associated pipeline and access routes for 13-8-199 are located within the Box Elder pasture of the Yellow Creek (06030) grazing allotment. This pasture is permitted to Burke Brothers as part of their yearly livestock operation as follows:

Allotment		Livestock		Period of Use	% Public Land	Authorized Use (AUM)
Number	Name	Number	Kind			
6030	Yellow Creek Boxelder Pasture	414	C	07/01-10/15	31	451

Environmental Consequences of the Proposed Action: Construction of well pad 1-9-99 and associated pipelines and roads would result in 18.98 acres of total disturbance on the Square S grazing allotment. This would result in an approximate loss of 1.5 Animal Unit Month's (AUM's). An AUM is defined as the amount of forage required to sustain one cow/calf pair for one month. Of the total disturbance, 10.39 acres would be short-term disturbance that takes place during pipeline construction. As soon as construction of the pipeline is completed, successful reclamation is expected to take place, and those AUM's lost during construction will be recovered. Long-term loss of approximately 0.5 AUM's is expected on the 8.59 acres associated with the well pad and access roads.

Construction of well pad 13-8-199 and associated pipelines and roads would result in 22.89 acres of disturbance on the Box Elder pasture of the Yellow Creek grazing allotment. This would

result in an approximate loss of 1.75 AUM's within the pasture. Of this disturbance, 12.74 acres (1 AUM) would be considered short-term loss associated with the pipeline. This loss in forage will be recovered with successful reclamation once pipeline construction is completed.

This loss in forage for this project is not expected to significantly impact livestock grazing on these allotments because the size of the disturbance and AUM's lost is nominal compared to the overall size of the allotment (64,050 acres Square S and 11,980 acres Yellow Creek) and permitted AUM's (3,519 AUM's Square S and 451 AUM's Yellow Creek). However, the cumulative impacts of past, present, and future oil and gas development on a large scale in the area could impact forage allocation within these allotments. This evaluation of forage allocation will be analyzed during the grazing permittees permit renewal.

Environmental Consequences of the No Action Alternative: The pads and associated roads and pipelines would not be approved and there would be no change from the current situation.

Mitigation:

1. Any livestock control facilities and/or rangeland improvements impacted during this operation will be replaced or repaired to their prior condition. See discussion regarding replacement of cattle guards below.

2. The applicant shall install a cattle guard to BLM specifications in any fences which they encounter along access roads. Cattle guards must meet the requirements of that specified in the Wild Horse mitigation section.

3. The applicant will be held responsible for maintenance of livestock control facilities, such as cattle guards, in a proper functioning condition which they encounter or affect during operation

RECREATION

Affected Environment: The proposed action occurs within the White River Extensive Recreation Management Area (ERMA). BLM custodially manages the ERMA to provide for unstructured recreation activities such as hunting, dispersed camping, hiking, horseback riding, wildlife viewing and off-highway vehicle use.

The project area has been delineated a Recreation Opportunity Spectrum (ROS) class of Semi-Primitive Motorized (SPM). SPM physical and social recreation setting is typically characterized by a natural appearing environment with few administrative controls, low interaction between users but evidence of other users may be present. The SPM recreation experience is characterized by a high probability of isolation from the sights and sounds of humans, providing an environment that offers challenge and risk. The typical recreationist that takes advantage of this type of environment is the upland big game hunter.

Environmental Consequences of the Proposed Action: The public will most likely not recreate in the vicinity of these facilities and will be dispersed elsewhere. If pad development and drilling activities coincide with the various hunting seasons (late August through December), it will most likely disrupt the experience sought by those recreationists.

With the introduction of new well pads and roads, an increase of traffic could be expected increasing the likelihood of human interactions, the sights and sounds associated with the human environment and a less naturally appearing environment.

Environmental Consequences of the No Action Alternative: No loss of dispersed recreation potential and no impact to hunting recreationists.

Mitigation: None

ACCESS AND TRANSPORTATION

Affected Environment: The primary access into well 13-8-199 is CR 24X and the primary access into well 1-9-299 is CR 91. CR 24X is a dirt road with a gravel surface that is frequently used to access the Piceance Basin from Rangely. CR 91 is a dirt road that is naturally surfaced and primarily used as ranch access. This route experiences minimal traffic mainly associated with recreationist (hunters) and oil and gas field workers (accessing wells).

Environmental Consequences of the Proposed Action: With an increase of vehicular traffic on CR 91 due to construction and well drilling activities it is likely that utilized road surfaces will deteriorate. Fugitive dust on dirt surfaced roads may linger above the surface reducing visibility and creating a hazard. This hazard is increased on naturally surfaced roads due to the breakdown of the soils.

Environmental Consequences of the No Action Alternative: Traffic levels and road conditions would remain as they are under the no action alternative.

Mitigation: Utilize dust abatement activities to reduce the fugitive dust to improve travel route safety.

REALTY AUTHORIZATIONS

Affected Environment: The off-unit portion of the access road to the BDU 1-9-299 pad from CR 91 to the Buckhorn Draw Unit (COC73788X) boundary will require a ROW. The proposed pipeline to serve the BDU 1-9-299 pad is within the Buckhorn Draw Unit and would not require a ROW. There are several existing pipeline ROWs adjacent to the proposed pipeline and access road. The existing pipeline ROWs include COC52705, COC67980, COC70129, COC72181, and COC0123685. The access road and pipeline to serve the BDU 13-8-199 well pad are contained within the unit, therefore a ROW is not necessary. Bargath, Inc. ROW COC71418 is located adjacent to the pipeline route along CR 24X that is proposed to serve the

BDU 13-8-199 pad. The permanent pipeline ROW width is 30 feet; however Bargath, Inc. has a pending application requesting a 50 feet permanent ROW width.

Environmental Consequences of the Proposed Action: ROW COC74597 for the access road will be approximately 2,000 feet long and 30 feet wide, containing 1.377 acres, more or less. There would need to be coordination between Mesa Energy Partners, LLC and existing ROW holders regarding construction, safety, and maintenance of the adjacent ROWs.

Environmental Consequences of the No Action Alternative: None

Mitigation:

1. The holder shall take all measures necessary to protect existing facilities and coordinate with ROW holders prior to pipeline and access road construction.

2. The holder is responsible for obtaining all necessary Rio Blanco County and/or State of Colorado permits.

GEOLOGY AND MINERALS

Affected Environment: Surficial geology of the proposed well locations is Uinta and Mesa's targeted zone is located in the Mesaverde. During drilling, potential water, oil shale, sodium, and gas zones will be encountered from surface to the targeted zone. Fresh water aquifers that will be encountered during drilling are in the upper portion (~2,000 feet) of the wells. These are commonly known as the Perched in the Uinta, the A-groove, B-groove and the Dissolution Surface in the Green River formation. The Green River aquifer zones and portions of the Wasatch formation are known for difficulties in drilling and cementing. BDU 1-9-299 is located in the area identified in the ROD/RMP as available for oil shale leasing and sodium leasing and BDU 13-8-199 is located in an area identified as available for multi-mineral leasing.

Mesa's proposed well BDU 1-9-299 and well pad is approximately 1,400 feet east of Shell Frontier's Oil Shale Research Development and Demonstration Lease (R,D&D) COC69167 and approximately 1,000 feet up-gradient of Shell Frontier's geo-hydrology monitoring well pad 3-1-299.

The wells and well pads are part of the Buckhorn Draw Exploratory Oil and Gas Unit COC-73788X.

Environmental Consequences of the Proposed Action: The proposed action may affect the fresh water aquifers in the Green River formation if loss circulation occurs during drilling and completion operations. Correctly implemented cementing and completion procedures of the proposed action isolates the formations and will prevent annular migration of gas, water, and oil between formations and aquifer zones.

Development of these wells will deplete the hydrocarbon resources in the targeted formation.

Environmental Consequences of the No Action Alternative: The natural gas resources in the targeted zone would not be recovered at this time.

Mitigation:

1. To indicate ownership of any aquifer impacts due to drilling and completion influence a fluorescent dye other than Rhodamin WT should be added to all drilling fluids used through the Green River formation.

2. Prior to the commencement of surface disturbing activities, the operator should notify Shell Frontier, the lessee of Oil Shale R,D&D Lease COC69167 and geo-hydrology well pad 3-1-299, of their plans to drill well BDU 1-9-299.

CUMULATIVE IMPACTS SUMMARY: This action is consistent with the scope of impacts addressed in the White River ROD/RMP. The cumulative impacts of oil and gas activities are addressed in the White River ROD/RMP for each resource value that would be affected by the proposed action.

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2006 A Report of the Class III Inventory of the EnCana Meeker South and West pipelines and Related Facilities, Garfield and Rio Blanco Counties, Colorado, and Uintah County, Utah. Uncompahgre Archaeological Consultants, Grand Junction, Colorado. (06-145-01)

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1979 Geologic Map of Colorado. United States Geologic Survey, Department of the Interior, Reston, Virginia.

WestWater Engineering
2010 Biological Survey Report Buckhorn Draw Unit Well Pad Locations: 1-9-299 and 13-8-199. WestWater Engineering, Grand Junction, Colorado.

PERSONS / AGENCIES CONSULTED: None.

INTERDISCIPLINARY REVIEW: The proposed action was presented to, and reviewed by the White River Field Office interdisciplinary team on 04/06/2010.
Date

Name	Title	Area of Responsibility	Date Signed
Bob Lange	Hydrologist	Air Quality, Water Quality (Surface and Ground), Hydrology and Water Rights, and Soils	08/19/2010
Jill Schulte	Botanist	Areas of Critical Environmental Concern, Threatened and Endangered Plant Species	08/03/2010
Mike Selle	Archaeologist	Cultural Resources, Paleontological Resources	
Matt Dupire	Rangeland Management Specialist	Invasive, Non-Native Species, Vegetation , Rangeland Management	
Lisa Belmonte	Wildlife Biologist	Migratory Birds, Threatened, Endangered and Sensitive Animal Species, Terrestrial and Aquatic Wildlife, Wetlands and Riparian Zones	8/20/2010
Christina Barlow	Natural Resource Specialist/HazMat Coordinator	Wastes, Hazardous or Solid	
Jim Michels	Outdoor Recreation Planner	Wilderness, Access and Transportation, Recreation,	08/19/2010
Jim Michels	Forester /Fire / Fuels Technician	Fire Management, Forest Management	08/19/2010
Paul Daggett	Mining Engineer	Geology and Minerals	08/05/2010
Stacey Burke	Realty Specialist	Realty Authorizations	08/18/2010
Jim Michels	Natural Resource Specialist / Outdoor Recreation Planner	Visual Resources	08/19/2010
Melissa J. Kindall	Range Technician	Wild Horses	08/23/2010

Finding of No Significant Impact/Decision Record (FONSI/DR)

DOI-BLM-CO-110-2010-131-EA

FINDING OF NO SIGNIFICANT IMPACT (FONSI)/RATIONALE: The environmental assessment and analysis of the environmental effects of the proposed action have been reviewed. The approved mitigation measures (listed below) result in a Finding of No Significant Impact on the human environment. Therefore, an environmental impact statement is not necessary to further analyze the environmental effects of the proposed action.

DECISION/RATIONALE: It is my decision to approve the proposed action with the addition of the mitigations listed below.

MITIGATION MEASURES:

1. All access roads will be treated with water and/or a chemical dust suppressant during construction and drilling activities so that there is not a visible dust trail behind vehicles. All vehicles will abide by company or public speed restrictions during all activities. If water is used as a dust suppressant, there should be no traces of oil or solvents in the water and it should be properly permitted for this use by the State of Colorado. Only water needed for abating dust should be applied; dust abatement should not be used as a water disposal option under any circumstances.

2. If erosion features such as riling, gullying, piping and mass wasting occur at anytime in the future on disturbed surfaces on public lands downstream from the project, the erosion features will be addressed immediately after observation by contacting the authorized officer (AO) and submitting a plan to assure successful soil stabilization with Best Management Practices (BMP) to address the erosion problems.

3. Access to the BDU 13-8-199 location will follow an existing unimproved road. If any portions of this road are not used for the access road they should be obliterated and revegetated.

4. The operator will provide a proposal for permanent storage and containment of produced fluids, prior to spudding the well.

5. The operator will provide a proposal for storage and containment of hydraulic fracturing fluids, if hydraulic fracturing is to occur.

6. The operator shall submit its Spill Prevention, Control, and Countermeasure (SPCC) plan and any plans for use, storage, containment of hazardous chemicals and emergency response procedures.

7. When drilling to set the surface casing, drilling fluid will be composed of fresh water, bentonite and/or a benign lost circulation material – that is a **lost circulation material that does not pose a threat to human health or the environment**, i.e. cedar bark, shredded cane stalks, mineral fiber and hair, mica flakes, ground and sized limestone or marble, wood, nut hulls, corncobs or cotton hulls.

8. No hazardous materials shall be used during any phase of the operations unless prior approval has been obtained from the BLM AO. All onsite drilling materials and chemicals shall be properly stored to ensure the prevention of spills. No environmentally harmful additives will be used.

9. No hazardous chemicals, fuels, oils, lubricants, or noxious fluids shall be disposed of at the drill sites, in the reserve pits or down hole.

10. At least 50 percent of all pit capacity shall be in cut material.

11. Reserve pits would be allowed to air dry for no more than one four-season cycle. The use of chemicals to aid in fluid evaporation, stabilization, or solidification must have prior BLM approval. If there are still fluids in the reserve pit after one four-season cycle following the drilling of the approved wells (regardless of if additional wells are planned), the operator will close the pits and submit via sundry notice (SN) the location for disposal or use of any pit fluids removed.

12. Comply with all Federal, State and/or local laws and regulations addressing the handling, use, and release of any substance that poses a risk of harm to human health or the environment, including CFR § 3162.5– 1, which requires that operators of federal oil and gas leases exercise due care and diligence to assure that leasehold operations do not result in undue damage to surface or subsurface resources, and that operators of these leases comply with Orders of the AO (the Secretary of the Interior) which are issued to protect the mineral resources, other natural resources, and environmental quality. The Bureau, which has identified oil as a hazardous substance (43 CFR 2801.5), believes that due diligence following cleanup of a spill or release of any material (regardless of exemption status) in quantities that could be deemed harmful to human health or the environment (risk based on evaluation of best available information, not limited to thresholds set forth by Occupational Safety and Health Administration (OSHA) for exposure, National Institute for Occupational Safety and Health (NIOSH), Comprehensive Environmental Response Compensation Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), and/or Colorado Oil and Gas Conservation Commission (COGCC) is demonstrated by confirmation sampling to verify that conditions which may adversely impact human health or the environment no longer exist.

13. Employ, maintain, and periodically update to the Best Available Technology(s) [as opposed to: the Best Available Technology not Entailing Excessive *Cost*, or the *Economically* Viable

Application of Best Available Technologies, or the Best *Practicable* Environmental Option, etc.] aimed at reducing:

a. fresh water utilization,
b. emissions, and
c. hazardous material utilization, production and releases through all phases of oil and gas exploration, development and production.

14. Regardless of a substance's status as exempt or non-exempt, provide for the clean-up and testing of air, water (surface or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment.

15. In addition to compliance with the reporting requirements of Notice to Lessee's-#3A and regardless of a substance's status as exempt or non-exempt, report all emissions or releases of any quantity of any substance that may pose a risk of harm to human health or the environment to the BLM White River Field Office (WRFO) at (970) 878-3800.

16. With the acceptance of this authorization or the running of thirty calendar days from its issuance, whichever occurs first, and during oil and gas exploration, development and production under this authorization, the operator, and through the operator, its agents, employees, subcontractors, successors and assigns, stipulates and agrees to indemnify, defend and hold harmless the United States Government, its agencies, and employees from all liability associated with the emission or release of substances that pose a risk to human health or the environment.

17. Locate culverts or drainage dips in such a manner as to avoid discharge onto unstable terrain such as headwalls or slumps. Provide adequate spacing to avoid accumulation of water in ditches or road surfaces. Install culverts with adequate armoring of inlet and outlet. Patrol areas susceptible to road or watershed damage during periods of high runoff.

18. Keep road inlet and outlet ditches, catchbasins, and culverts free of obstructions, particularly before and during spring runoff. Routine machine-cleaning of ditches should be kept to a minimum during wet weather. Leave the disturbed area in a condition that provides drainage with no additional maintenance.

19. Culverts and waterbars should be installed according to 9113 standards and sized for the 10-year storm event with no static head and to pass a 25-year event without failing. The BLM road manuals are available for download at the following website: http://www.blm.gov/co/st/en/fo/wrfo/oil_and_gas_wrfo.html.

20. Should construction be delayed into the 2011 breeding season, a raptor survey (spot-check of existing nests) will be required and results provided to BLM staff biologists prior to construction. All raptor surveys will be performed following methods and procedures described in the WRFO Diurnal Raptor Survey Protocol. The third-party contractor responsible for conducting raptor surveys associated with the proposed action will contact the WRFO and request the most current version of the WRFO Diurnal Raptor Survey Protocol

prior to performing surveys. Should an active nest be located, no development activities will be allowed within ¼ - ½ mile (depending on species) of the identified nest site from February 1 through August 15 or until young have fledged and dispersed from the nest stand (TL-01 and 04 WRFO ROD). No surface occupancy would be allowed within ¼ mile of identified nests (NSO-02 and 03 WRFO ROD).

21. All raptor nests (e.g., stick-built structures, nest cavities, eyries), regardless of their breeding or non-breeding season status, are to be reported to WRFO Natural Resource Specialist, Brett Smithers (see contact information below) via phone (970-878-3818) or by email (preferred; brett_smithers@blm.gov) within 24 hrs of the observation. Please provide the following when reporting nests: 1. the species observed using the nest; 2. UTM coordinates for the nest (recorded in NAD83, Zone 12); 3. the date the nest was first documented; 4. brief summary describing adult and/or juvenile behavior, number of nestlings observed, etc.; and, 5. relevant project information (e.g., project name and NEPA document number, if known) .

22. All earthwork (vegetation removal) associated with pad and new access road development for both locations will take place outside of the migratory bird nesting season (May 15 – July 15).

23. The operator shall prevent use by migratory birds of reserve pits that store or are expected to store fluids which may pose a risk to such birds (e.g., migratory waterfowl, shorebirds, wading birds and raptors) during completion and after completion activities have ceased. Methods may include netting or other alternative methods that effectively prevent use and that meet BLM approval. It will be the responsibility of the operator to notify the BLM of the method that will be used to prevent use two weeks prior to when completion activities are expected to begin. The BLM approved method will be applied within 24 hours after completion.

24. There will be no construction and/or drilling activities allowed on the 1-9-299 location from January 1 – April 30 to avoid unnecessary activity in mule deer severe winter range. WRFO will except/modify Resource Management Plan (RMP)-prescribed timing limitations for those projects (via SN) where there is written documentation affirming mutual consent among Colorado Division of Wildlife (CDOW), the project proponent, and BLM. Outside such agreements, WRFO will consider excepting/modifying prescribed timing limitations upon written request from CDOW on a project proponent's behalf.

25. All installed cattle guards at fence crossings associated with access roads and/or a pipeline to a well location will be upgraded to a horse proof cattle guard so that the risk of wild horses being trapped in any of the installed cattle guards is reduced.

26. It is necessary for the company to make pre-construction contact with the WRFO in order to determine if any of the following mitigation is warranted: In order to protect wild horses within this area, development activities may be delayed for a period in excess of 60 days during the spring foaling period between March 1 and June 15. The lessee may also be

required to perform special conservation measures within this area including: 1) Habitat improvement projects in adjacent areas if development displaces wild horses from critical habitat, 2) disturbed watering areas would be replaced with an equal source of water having equal utility, and 3) activity/ improvements would provide for unrestricted movement of wild horses between summer and winter ranges.

27. In wild horse use areas, open trenches for burial of gathering pipelines should be inspected daily to reduce the potential for horses to become trapped should they fall into a trench.

28. Should the proposed action occur simultaneous with a wild horse gather, all project-related traffic would need to be coordinated with the BLM and the contractor for the gather.

29. To minimize the incidents of young foals becoming dislocated from their mares, drilling and receiving crews would be required to slow or stop when wild horses are encountered, allowing bands to move away at a pace slow enough so that the foals can keep pace and are not separated.

30. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the AO. Within five working days the AO will inform the operator as to:

    - whether the materials appear eligible for the National Register of Historic Places
    - the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary)
    - a timeframe for the AO to complete an expedited review under 36 CFR 800-11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

31. Pursuant to 43 CFR 10.4(g) the holder of this authorization must notify the AO, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the AO.

32. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing paleontological sites, or for collecting fossils. If fossil materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the AO. Within five working days the AO will inform the operator as to:

    - whether the materials appear to be of noteworthy scientific interest

- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not feasible)

33. If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

34. If it becomes necessary to excavate into the underlying rock formation to construct the access road, level the well pad, excavate the reserve/blooie/cuttings pit or bury the well tie pipeline a paleontological monitor shall be present for any such excavations.

35. All permanent (onsite for six [6] months or longer) structures, facilities and equipment placed onsite shall be painted and maintained using Munsell Soil Color Chart Juniper Green or equivalent within six months of installation.

36. When working on lands administered by the BLM WRFO, notify Craig Interagency Dispatch (970-826-5037) in the event of any fire. The reporting party will inform the dispatch center of fire location, size, status, smoke color, aspect, fuel type and contact information. The reporting party, or a representative of, should remain nearby in order to make contact with incoming fire resources to expedite actions taken towards appropriate management response (AMR). The applicant and contractors will not engage in any fire suppression activities outside the approved project area.

37. Accidental ignitions caused by welding, cutting, grinding, etc. will be suppressed by the applicant only if employee safety is not endangered and if the fire can be safely contained using hand tools and portable hand pumps. If chemical fire extinguishers are used the applicant must notify incoming fire resources on extinguisher type and the location of use.

38. Natural ignitions caused by lightning will be managed by federal fire personnel. If a natural ignition occurs within the approved project area, the fire may be initially contained by the applicant only if employee safety is not endangered. The use of heavy equipment for fire suppression is prohibited, unless authorized by the Field Office Manager.

39. Slash and woody debris associated from the disturbance shall follow mitigations as written under Forest Management.

40. In accordance with the 1997 White River RMP/ROD page 2-22, all trees removed in the process of construction shall be purchased from the BLM.

41. Trees or shrubs that must be removed for construction or right-of-way (ROW) preparation shall be cut down to a stump height of 6 inches or less prior to other heavy equipment operation ensuring that there are adequate woody materials for reclamation. Trees removed

for construction that are not needed for reclamation purposes shall be cut in four foot lengths (down to 4 inches diameter) and placed in manageable stacks immediately adjacent to a public road to facilitate removal by the public or removed for company use. Woody materials required for reclamation shall be stockpiled along the margins of the authorized use area. It is recommended to chip the smaller limbs and; the boles and limbs of the larger trees should be retained for redistribution. Once the disturbance has been recontoured and reseeded, stockpiled woody material shall be scattered across the reclaimed area where the material originated. Chipped material shall be scattered across reclaimed areas in a manner that avoids the development of a mulch layer that suppresses growth or reproduction of desirable vegetation. Redistribution of woody debris will not exceed 20% ground cover. Woody material will be distributed in a manner that effectively deters vehicle use. Materials would be distributed in such a way to avoid large concentrations of heavy fuels.

42. Any livestock control facilities and/or rangeland improvements impacted during this operation will be replaced or repaired to their prior condition. See discussion regarding replacement of cattle guards below

43. The applicant shall install a cattle guard to BLM specifications in any fences which they encounter along access roads. Cattle guards must meet the requirements of that specified in the Wild Horse mitigation section.

44. The applicant will be held responsible for maintenance of livestock control facilities, such as cattle guards, in a proper functioning condition which they encounter or affect during operation.

45. Utilize dust abatement activities to reduce the fugitive dust to improve travel route safety.

46. The holder shall take all measures necessary to protect existing facilities and coordinate with right-of-holders prior to pipeline and access road construction.

47. The holder is responsible for obtaining all necessary Rio Blanco County and/or State of Colorado permits.

48. To indicate ownership of any aquifer impacts due to drilling and completion influence a fluorescent dye other than Rhodamin WT should be added to all drilling fluids used through the Green River formation.

49. Prior to the commencement of surface disturbing activities, the operator should notify Shell Frontier, the lessee of Oil Shale R,D&D Lease COC69167 and geo-hydrology well pad 3-1-299, of their plans to drill well BDU 1-9-299.

COMPLIANCE/MONITORING: On-going compliance inspections and monitoring will be conducted by the BLM WRFO staff during and after construction. Specific mitigation developed in this document will be followed. The operator will be notified of compliance related issues in writing, and depending on the nature of the issue(s), will be provided 30 days to resolve such issues.

NAME OF PREPARER: Brett Smithers

NAME OF ENVIRONMENTAL COORDINATOR: Lisa Belmonte

SIGNATURE OF AUTHORIZED OFFICIAL: _____
Field Manager

DATE SIGNED: 09/15/10

ATTACHMENTS: Figure 1. Project area map for proposed Mesa Energy well pad locations BDU 13-8-199 and BDU 1-9-299.

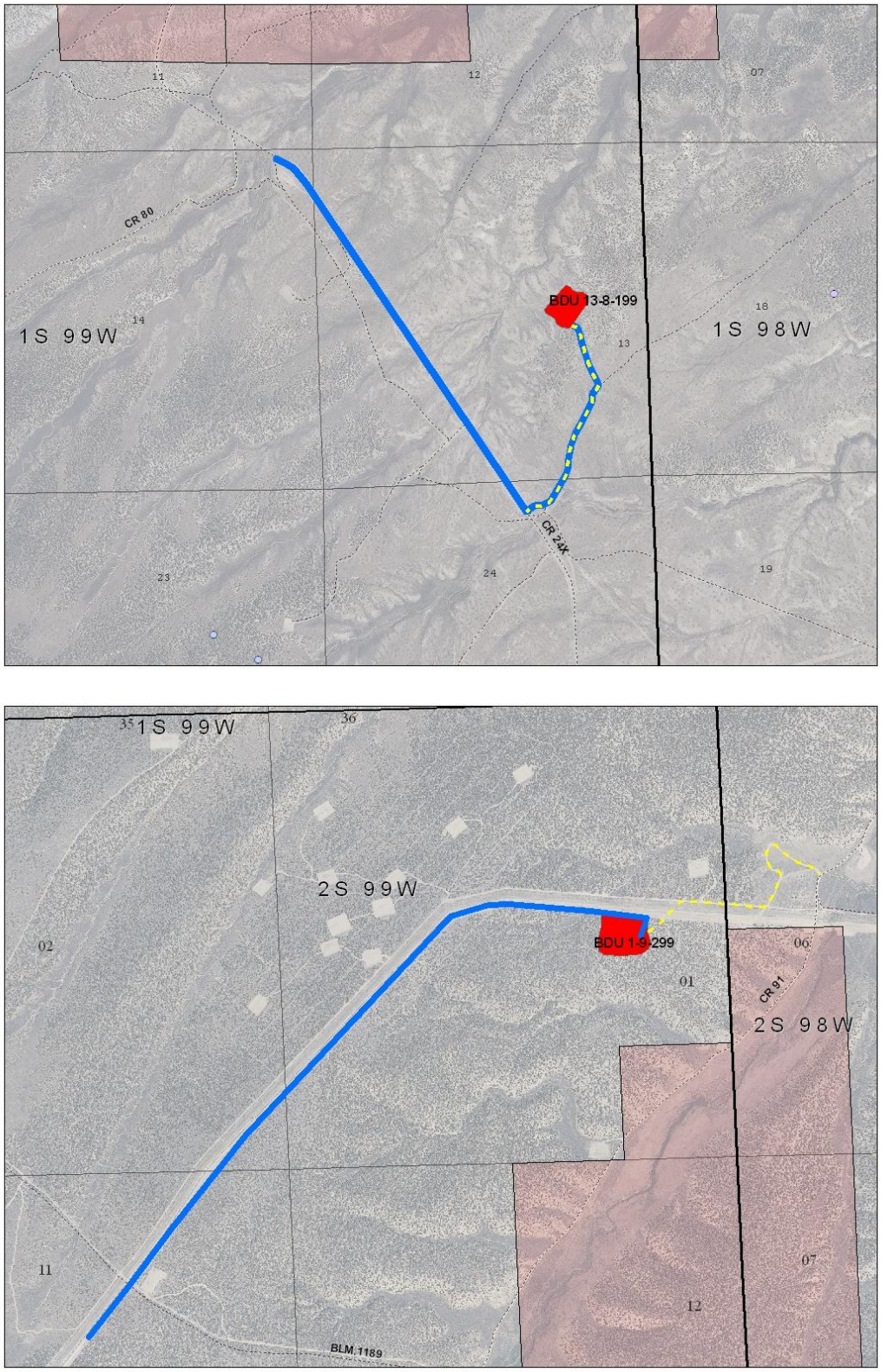

Figure 1. Project area map for proposed Mesa Energy well pad locations BDU 13-8-199 and BDU 1-9-299. Proposed pipeline corridors are symbolized as blue lines and proposed access corridors are symbolized as dashed yellow lines.